EFFECTIVENESS OF BACK MASSAGE ON FATIGUE AND ANXIETY AMONG PATIENTS RECEIVING CHEMOTHERAPY IN ONCOLOGY WARD AT GOVERNMENT RAJAJI HOSPITAL MADURAI

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ABSTRACT

Title: Effectiveness of back massage on fatigue and anxiety among patients receiving chemotherapy in oncology ward at Government Rajaji Hospital, Madurai-20. **Objectives:** Assess the pretest level of fatigue and anxiety among the patient receiving chemotherapy. Assess the effectiveness of back massage on fatigue and anxiety among patient receiving chemotherapy. Associate the level of fatigue and anxiety among patients receiving chemotherapy with selected demographic and clinical variables. Assess the co-relation between chemotherapy related fatigue and anxiety. **Hypotheses**: There is a significant difference between the pretest and post test level of fatigue and anxiety among patients receiving chemotherapy. There is a significant association in the level of fatigue and anxiety among patients receiving chemotherapy with the selected demographic and clinical variables. There is a significant correlation between fatigue and anxiety among patients receiving chemotherapy. **Conceptual framework**: Martha Rogers's science of unitary human being model. **Methodology:** A Quantitative approach -quasi experimental-Non equivalent control group design was used, the study was conducted at oncology ward in Government Rajaji Hospital, Madurai-20.sample size was 60, 30 in each group, assigned by consecutive sampling. Pre test was done using spielberger-state anxiety inventory and Brief Fatigue Inventory. Back massage (effleurage, petrissage, tapotment, and vibration) for 15 minutes for 3 consecutive days was given to the subjects in the experimental group. On third day post test was done using same tools. **Findings:** The mean pre-test fatigue and anxiety score reduced from 4.15 to 2.41, 41.1 to30.7 in the post test respectively. **Conclusion:** The findings proved that the Back massage can be used in reducing the chemotherapy related fatigue and anxiety.

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ABBREVIATIONS

WHO	-	World Health Organization
IARC	-	International Agency for Research on Cancer
GLOBACON	-	Global Cancer Census
TT	-	Therapeutic Touch
HT	-	Healing Touch
MT	-	Massage Therapy
QOL	-	Quality of Life
FACT-G	-	Functional assessment of cancer therapy-General
DIC	-	Distress Inventory for Cancer
HADS	-	Hospital Anxiety Distress Scale
STAI	-	State Trait Anxiety Inventory
EORTC-QLQ-C	-	European Organization for Research and Treatment of Cancer Core Questionnaire
MPQ	-	Mc Gill Pain Questionnaire
VAS	-	Visual Analog Scale
RFS	-	Rhoten Fatigue Scale
BFI	-	Brief Fatigue Inventory
AML	-	Acute Myeloid Leukemia
RCT	-	Randomized Control Trial
CRF	-	Cancer Related Fatigue
OMR	-	Organized Medical Records
ANOVA	-	Analysis of Variance
CAM	-	Complementary and Alternative Medicine
ANV	-	Anxiety Induced Nausea and Vomitting

Introduction

WHAT CANCER CANNOT DO

CANCER IS SO LIMITED…….

IT CANNOT CRIPLE LOVE

IT CANNOT SHATTER HOPE

IT CANNOT CORRODE FAITH

IT CANNOT EAT AWAY PEACE

IT CANNOT DESTROY CONFIDENCE

IT CANNOT KILL FRIENDSHIP

IT CANNOT SHUT OUT MEMORIES

IT CANNOT SILENCE COURAGE

IT CANNOT REDUCE ETERNAL LIFE

IT CANNOT QUENCH THE SPIRIT.

---AUTHOR UNKNOWN

CHAPTER - I

INTRODUCTION

By touching a body, we touch every event it has experienced. For a few brief moments we hold all of a client's stories in our hands. We witness someone's experience of their own flesh, through some of the most powerful means possible: the contact of our hands, the acceptance of the body without judgment, and the occasional listening ear. With these gestures we reach across the isolation of the human experience and hold another person's legend. In massage therapy, we show up and ask, in so many ways, what it is like to be another human being. In doing so, we build a bridge that may heal us both.

-Tracy Walton, "The Health History of a Human Being,"

Massage Therapy Journal, winter 1999.

Human body is the most beautiful and generous creation of god. It has the ability to adapt to the various situations provided, but vigorous changes in climatic conditions, factors especially the ones resulting from vigorous industrialization, food pattern, and personal habits can harm it drastically and force it to death.

Cancer is a group of complex diseases with various manifestations depending on which body system is affected and the type of tumor cells involved. Cancer can affect people of any age, gender, ethnicity, or geographic region. Although the incidence and mortality rates of cancer have continued to decline since 1990, it remains one of the most feared diseases. The fear engendered by even the suggestion of a cancer diagnosis often evokes feelings of hopelessness and helplessness.

According to World Health Organization's 2012 report Cancer is one of the second largest killer diseases next to heart disease. The world wide incidence of

cancer is estimated at seven million with an annual mortality of about five million. It is projected that by the year 2015 two third cancer will occur in the developing countries.

According to Global cancer census 2012 estimation of Cancer accounts for about 23 and 7% deaths in United States of America and India, respectively. The world's population is expected to be 7.5 billion by 2020 and approximations predict that about 15.0 million new cancer cases will be diagnosed; with deaths of about 12.0 million cancer patients (Brayand et al, 2006). The prevalence of cancer in India is estimated to be around 2.5 million, with about 8, 00,000 new cases and 5, 50,000 deaths per annum (Nandakumar, 1990-96).100 runs the risk of dying from cancer before their 75th birthday.

As per Indian population census data, the rate of mortality due to cancer in India was high and alarming with about 806000 existing cases by the end of the last century. Cancer is the second most common disease in India responsible for maximum mortality with about 0.3 million deaths per year. According to 1991 Indian census data, about 609000 cancer cases have been observed. This number had drastically increased to 806,000 by the end of the last century; with 96.4 and 88.2% age standardized rates for males and females; out of 100,000 cases analyzed (Rao et al, 1998). During last one decade, about 70% cancer cases have been diagnosed and treated with survival of a few patients (Dins haw et al, 1999). It is believed that in near future the number of cancer patients will increase in the developing and under developed countries, which may rise up to 70% a serious issue for all of us.

The International Agency for Research on Cancer (IARC), World Health Organization's specialized cancer agency, has released the latest data on cancer incidence, mortality and prevalence worldwide. The most recent estimates for 28

types of cancer in 184 countries and offers a comprehensive overview of the global cancer burden. It reveals striking patterns of cancer in women and highlights that priority should be given to cancer prevention and control measures for breast and cervical cancerglobally.

All types of cancers have been reported by IARC the International Agency for Research on Cancer in Indian population including the cancers of skin, lungs, breast, rectum, stomach, prostate, liver, cervix, esophagus, bladder, blood, mouth etc. The magnitude of cancer problem in the Indian Sub-continent is increasing due to poor to moderate living standards (Wynder et al, 1974) and inadequate medical facilities. Nowadays, India is growing with a good progress rate and probably will become a developed country within a few decades resulting into its participation in the world development. Indians are at high risk of acquiring cancers due to high rates of smoking, tobacco use, occupational risks, and unhygienic residential living conditions. The prevalence of cancer in India is affecting the economy of the country.

According to Chennai Cancer Registry, also known as the Madras Metropolitan Tumour Registry, is one of the earliest registries in the Indian network (since 1981), and is based at the Cancer Institute (WIA), Chennai, and the Dindigul Ambilikkai Cancer Registry the average annual number of incident cases predicted for 2012–16 would be 6100 in Chennai and 55 000 in Tamil Nadu. The bulk of predicted cancer cases are among the age group of 35–64 years, both in Chennai and Tamil Nadu. By 2016, the incidence of breast cancer will rank higher than that for cervix cancer as the most frequent cancer in Tamil Nadu, It is also predicted that it would dislodge cervix cancer to emerge as the most common cancer in Tamil Nadu in 2016. Changes in socioeconomic factors among women, even in rural areas, with respect to education, age at first childbirth and parity suggest that the risk of breast

cancer may continue to increase. In contrast, the cervical cancer incidence and burden has been predicted to fall in Chennai but its predicted burden in Tamil Nadu would remain the same. Breast and cervical cancers together constitute almost half of the total cancer burden among women in Chennai and Dindigul, while the number of lung, stomach and large bowel cancers occurring among both sexes together would surpass the number of cervix cancers in Chennai.

The average annual number of incident cases predicted for 2012–16 would be 6100 in Chennai and 55 000 in Tamil Nadu. In Chennai, the total cancer burden is predicted to increase by 32% by 2012–16 compared with 2002–06, with 19% due to changes in cancer risk and a further 13% due to the impact of demographic changes.

Oncology nurses have special skills in assisting the client and family with the psychosocial issues associated with cancer and terminal illness. Collaboration among healthcare professionals (e.g., surgeons, oncologists, nurses, social workers) ensures the most effective care and treatment for the client with cancer.

Chemotherapy (also called chemo) is a type of cancer treatment that uses drugs to destroy cancer cells. Chemotherapy works by stopping or slowing the growth of cancer cells, which grow and divide quickly. But it can also harm healthy cells that divide quickly, such as those that line the mouth and intestines or cause the hair to grow. Damage to healthy cells may cause side effects. Often, side effects get better or go away after chemotherapy is over.

- Chemotherapy is one option available to treat cancer patients. The types of medication used and how they are administered depends upon the patient's situation, the type of cancer, and the goal of cancer therapy.
- Chemotherapy options are individualized for each patient. Treatment decisions are usually collaboration between the patient, family, and

oncologists. There are different goals for chemotherapy. The treatment may be meant to cure the cancer, control its growth and spread, or provide comfort to the patient. The battle to treat cancer is ongoing. There are many new chemotherapeutic drugs and treatment protocols being developed.

Historically, the goals of early chemotherapy were limited primarily to palliation of symptoms. An increase in available agents and more experience with cytotoxic chemotherapy produced significant tumor regression and improved control of cancer. The goals of chemotherapy shifted to a curative approach for cancers in which complete responses to chemotherapy were seen.

Cancers for which cure and increased survival have been accomplished using chemotherapy given alone or in combination. Fewer than 10% of eligible patients actively being treated for cancer are estimated to be enrolled in clinical trials.

The use of drugs to control or eradicate cancer has developed into the specialization of medical oncology. The treatment of individuals with cancer is one of the most rapidly expanding and dynamic fields in medicine and demands continuous reevaluation and reappraisal of both new and established therapies.

Fatigue is the most common side effect of cancer treatment with chemotherapy, radiation therapy, or selected biologic response modifiers. Cancer treatment–related fatigue generally improves after therapy is completed, but some level of fatigue may persist for months or years following treatment. Research indicates that for at least a subset of patients, fatigue may be a significant issue long into survivorship. Fatigue is also seen as a presenting symptom in cancers that produce problems such as anemia, endocrine changes, and respiratory obstruction and is common in people with advanced cancer who are not undergoing active cancer

treatment. Cancer treatment–related fatigue is reported in 14% to 96% of patients undergoing cancer treatment and in 19% to 82% of patients post treatment.

Cella and colleagues captures several of the more commonly described features of fatigue. They define fatigue as, “a subjective state of overwhelming and sustained exhaustion and decreased capacity for physical and mental work that is not relieved by rest.”

Fatigue experienced as a side effect of cancer treatment is differentiated from fatigue experienced by healthy people in their daily lives. Healthy fatigue is frequently described as acute fatigue that is eventually relieved by sleep and rest; cancer treatment–related fatigue is categorized as chronic fatigue because it is present over a long period of time, interferes with functioning, and is not completely relieved by sleep and rest. Also, the level of cancer related fatigue is often disproportionate to the level of activity or energy exerted. Although the label chronic fatigue is accurate, using this label does not mean that people with cancer who experience fatigue have chronic fatigue syndrome.

Anxiety is a normal response to unfamiliar, uncertain, unpredictable and dangerous situation: therefore, it is an appropriate response to a diagnosis of cancer. Usually this response is time limited in that it is protective mechanism that allows the individual to prepare for a stressful life event.

Anxiety results with the anticipation of test results, at the time of diagnosis, when preparing for treatment procedures and at transitional points during illness. It is likely to continue when treatment is finished and may remain with fears of recurrence. The initial management of mild to moderate anxiety is the provision of support and information.

All anxiety is not normative or easily managed, and excessive or prolonged anxiety will interfere with coping and activities of daily living for some patients.

Physical symptoms of anxiety vary considerably with people. Many patients have difficulty sleeping or report frightening dreams. Some patients may be afraid to sleep or may be frightened when left alone, where others may be consistently tensed and cannot be distracted from their worrying. The belief that it is reasonable for a patient to worry when they have cancer may present a barrier to appropriate evaluation and treatment.

State anxiety (S-anxiety) can be defined as fear, nervousness, discomfort, etc. and the arousal of the autonomic nervous system induced by different situations that are perceived as dangerous. This type of anxiety refers more to how a person is feeling at the time of a perceived threat and is considered temporary.

Trait anxiety (T-anxiety) can be defined as feelings of stress, worry, discomfort, etc. that one experiences on a day to day basis. This is usually perceived as how people feel across typical situations that everyone experiences on a daily basis.

Discussions surrounding the use and definitions of complementary and alternative therapies have been undergoing during past 20 years with number of reports adding to the debate.

Most recently, the national guidelines for the use of complementary therapies for supportive care of cancer used the word complementary to describe therapies used alongside conventional health care. A number of studies of complementary alternative therapies have shown promising results, suggesting that complementary alternative medicine may be able to alleviate psychological and or physical symptoms and improve quality of life in patients with cancer.

The manipulation of soft tissue, in the form of massage, aromatherapy or reflexology, carries with it other possible benefits, some of it not fully understood or evaluated with in cancer care. The works of the touch research institute and others have helped to clarify the benefits of massage for people with cancer and diminish these concerns.

Beyond simple caring touch, there are several modalities that use touch as a deliberate intervention in supportive cancer care. Using a number of physiological and psychological measures, massage has been demonstrated to reduce cortisol levels, anxiety, fatigue and pain.

The National Cancer Institute's Office of Cancer Complementary and Alternative Medicine has offered a classification system in which some methods commonly referred to as variants of massage – methods that are used by some massage therapists – are classified separately. For example, Reiki, Therapeutic Touch (TT), and Healing Touch (HT) are classed as ''Energy Therapies,'' reflexology is separated from massage in ''Manipulative and Body-Based Methods,'' and aromatherapy is listed as a ''Mind body Intervention.'' This ambiguity makes it important in clinical communications and research to clarify how the term ''massage'' is being used in a given context.

There are various forms of therapeutic manipulation of soft tissue have been practiced across cultures for thousands of years, Swedish (also referred to as ''classical'') massage is the most common form in the West and is the core of most massage training programs. Swedish massage was developed in the 19th century by Per Henrik Ling and introduced as a health care modality in the United States (US) in the 1850s by George and Charles Taylor, two physicians who had studied in Sweden.

Swedish massage has the most extensive evidence base and is the baseline training in most massage schools. Its most recognizable hallmarks are the familiar long, flowing or gliding strokes of effleurage, and the strokes of petrissage that lift, roll, or knead the tissue. These methods also are relatively easily learned and hence can be taught to family care givers. Other common Swedish techniques include friction, vibration, and tapotement (percussion or tapping).

Because of its pervasiveness, Swedish methods are usually what people associate with massage. Swedish methods tend to be the basic approach used by massage therapists who work with cancer patients, and they figure most prominently in research on the effects of massage in supportive cancer care. These methods can be adapted to the needs of cancer patients in relieving their anxiety and fatigue.

1.1 NEED FOR THE STUDY

Cancer can take away all of my physical abilities. It cannot touch my mind, it cannot touch my heart, and it cannot touch my soul.

— Henry Ford

A study conducted by Karthekeyan etal (2013) and few other studies have addressed the issue of fatigue as a result of the emotional distress associated with undergoing diagnostic evaluation for cancer and the effects of medical and surgical procedures used for the evaluation and initial treatment. Most of the patients enter the cancer care system following at least one surgical procedure which may cause emotional distress and fatigue.

The care of patients with cancer not only involves dealing with its symptoms but also with complicated information and uncertainty; isolation; And fear of disease progression, disease recurrence, and death. Patients whose treatments require them to

go without human contact can find a lack of touch to be an especially distressing factor. Massage therapy is often used to address these patients' need for human contact, and findings support the positive value of massage in cancer care.

Despite major advances in fatigue management, chemotherapy related fatigue and anxiety is managed poorly in 80% of the patients with cancer. Due to deleterious side effects of pharmacology therapy in these people, there is an urgent need for clinical trials of non-pharmacological interventions to examine the effect of therapeutic touch (TT) on the anxiety and fatigue of the cancer patients undergoing chemotherapy.

One of the most primal and spontaneous ways in which humans offer support to another who is ill or suffering has been through touch. To decrease anxiety and fatigue in the patients undergoing chemotherapy, it is essential to rigorously examine non-pharmacological interventions that are less likely to result in deleterious side effects that can elicit a relaxation response and can maintain quality of life. One such non-pharmacological intervention is massage therapy.

Massage is a form of complementary medicine that relies on the body's nerve endings and pressure points to promote relaxation. There are many forms of massage: Shiatsu, Hellerwork, and Reflexology for example. However, the most widespread variation builds upon the five basic strokes of Swedish massage: effleurage (slow, rhythmic gliding strokes in the direction of blood flow towards the heart) petrissage (kneading, pressing and rolling muscle groups) friction (steady pressure or tight circular movements, often used around joints) percussion, (drumming hands on body) and vibration (rapid movement shaking the muscle back and forth).

Cassileh and Vickers (2004) reported a 50% reduction of fatigue, anxiety, nausea, pain after massaging the back, shoulders, and hands for 3to 5 minutes relaxes

muscles and promotes sleep and comfort. It is believed that massage aids the ability of the body to heal itself and is aimed at achieving or increasing health and well being.

In United States, massage is considered as an alternative or complementary treatment compared to many areas of world where massage is an integral part of health system. Strong, sustained touch in massage can have an even greater effect than other forms of touch. Massage speeds the removal of metabolic waste products, allows more oxygen and nutrients to reach the cells and tissues.

On the physical level, massage relieves muscle tension, reduces muscle spasms, improves joint flexibility and range of motion, improves posture, lowers blood pressure, slows heart rate, promotes deeper and easier breathing and improves the health of the skin.

On mental level, massage induces a relaxed state of alertness, reduces mental stress and increases the capacity for clearer thinking.

On emotional level massage satisfies the need for caring and nurturing touch, increases the feeling of well being, decreases mild depression, enhances self image, reduces the level of anxiety and increases awareness of mind-body connection.

The main indications for massage in general practice are back symptoms (20%), relaxation (19%), neck symptoms (17%), mood disorders (7%), and leg symptoms (4%). Therapeutic massage can be effective in treatment programs for pain. The mechanisms for reducing pain may consist of local effects on muscle and effects on the subconscious parts of the brain that control the experience of pain and emotions.

Florence Nightingale, founder of the modern nursing profession, recognized this and regarded caring touch as an essential ingredient of good nursing care. Indeed, touch as a simple expression of interpersonal caring – without technique or

manipulation of tissue – is now known to evoke powerful salutogenic responses in the body and mind of the recipient.

The idea that the touch can heal is an old one cave paintings in the Pyrenees show that 15,000 years ago people treated injuries with what looks like massage. References to massage has been found in 4000 years old Chinese medical text.

An upsurge of interest in the field began in the 1970's with Dr. Dolores kreger and Dr. Martha Rogers, two nurse pioneers who advocated the art of caring form of touch in nursing practice. Some of the greatest physicians in the history advocated massage, including celsus, gallen, ambroise.william Harvey father of surgery utilized massage as a healing technique.

The first massage therapy clinics were opened by Swedish physicians after the civil war. At first physicians performed massage and after it was delegated to nurses and physical therapists and by mid –twentieth century, massage therapy was virtually abandoned by most health care professionals except nurses.

Researchers from the Integrative Medicine Program at the University of Texas M.D. Anderson Cancer Center wrote in 2008 that "patients whose treatments require them to go without human contact can find a lack of touch to be an especially distressing factor," and say that research has "attributed numerous positive effects to massage, including improvements in the quality of patients' relaxation, sleep, and immune system responses and in the relief of their fatigue, pain, anxiety, and nausea."

Gertrude beard, an American nurse who served in the army in World War I is credited with establishing therapeutic massage as a vital intervention for the stimulation of self-healing in patients. There are many benefits to massage therapy for patients undergoing treatment for cancer. Massage therapy has been used to treat stress and anxiety, improve mood, induce relaxation, and control pain.

The largest published report on therapeutic massage is a prospective, nonrandomized, observational study of patients treated at the Memorial Sloan–Kettering Cancer Center in New York City.

The Cochrane Collaboration has reviewed therapeutic massage for non-specific low back pain. The authors concluded that massage therapy may be beneficial for patients with sub acute and chronic nonspecific low back pain, especially when combined with exercise and education. They also reviewed the role of therapeutic massage and aromatherapy for cancer-related symptoms. They concluded that massage or aromatherapy plus massage confer short-term benefits on psychological wellbeing, with the effect on anxiety supported by limited evidence. Effects on physical symptoms may also occur. Available evidence is sufficient to indicate that therapeutic massage is a useful discipline for the relief of a variety of symptoms.

During past years, many studies conducted on using complementary therapies for reducing pain severity in patients and for supporting these methods but busy schedule of nurses, time limitations for bonding a relation between nurse and patient and lack of research background to support them are problems that have challenged using of these methods. Existence of doubt among society and even among physicians is one of the main obstacles toward using of these methods by nurses. This necessitate a powerful and complete research background to support usage of these methods because existence of a scientific guide which is appropriate for nurses can help them to high quality and more scientific health services to patients.

Therefore, this study was conducted to assess the effect of massage therapy on fatigue and anxiety in patients receiving chemotherapy. Clinical trials of better design are required to determine precise indications for massage and to ascertain whether specific techniques are more beneficial than others for particular symptoms.

Today massage has emerged as a therapeutic discipline in the west and embraced by millions who use it to relieve fatigue, pain, anxiety, and tension and generally feel better. The purpose of this study is to reduce the level of anxiety and fatigue and assess the effectiveness of back massage among patients receiving chemotherapy.

Back massage has been proven to benefit cancer patient physically and emotionally.

1.2 STATEMENT OF THE PROBLEM

A study to assess the Effectiveness of Back Massage on Fatigue and Anxiety among Patients receiving Chemotherapy in Oncology ward at Government Rajaji Hospital Madurai-20**.**

1.3 OBJECTIVES OF THE STUDY

1. To assess the pretest level of fatigue and anxiety among the patient receiving chemotherapy in experimental and control group.
2. To assess the effectiveness of back massage on fatigue and anxiety among patient receiving chemotherapy in experimental group.
3. To associate the level of fatigue and anxiety among patients receiving chemotherapy with selected demographic and clinical variables in experimental group.
4. To co-relate between chemotherapy related fatigue and anxiety in both groups.

1.4 HYPOTHESIS

H_1 - There is a significant difference between the pretest and post test level of fatigue and anxiety among patients receiving chemotherapy in experimental group.

H_2 - There is a significant association in the level of fatigue and anxiety among patients receiving chemotherapy with the selected demographic and clinical variables in experimental group.

H_3 - There is a significant correlation between fatigue and anxiety among patients receiving chemotherapy in both groups.

1.5 OPERATIONAL DEFINITIONS

Effectiveness

In this study effectiveness refers the extent to which the massage therapy has brought intended result in terms of significant difference in level of fatigue and anxiety which is measured by Brief Fatigue Inventory and State Trait Anxiety Inventory.

Back massage

It this study back massage refers to the manipulation of muscles in thoraco lumbar region by means of effleurage, petrissage, tapotment and vibration for 15 minutes for 3 consecutive days from scapula to the spinous process.

Chemotherapy related fatigue

In this study fatigue refers to a persistent, subjective sense of tiredness or exhaustion due to chemotherapy that the patient feels during general activity, walking and mood measured by Brief Fatigue scale.

Chemotherapy related anxiety

In this study anxiety refers to a multisystem response to a perceived threat or danger as measured by Spielberger State Anxiety Inventory.

1.6 ASSUMPTION

- Cancer patients experience fatigue and anxiety in all stages.
- Back massage is a Harmless Intervention for patients receiving chemotherapy.

1.7 DELIMITATION

- Small sample size consist of 60 participants.
- Data collection period is limited to 4 to 6 weeks.
- Participants treated at Government Rajaji Hospital,Madurai-20.

1.8 PROJECTED OUTCOME

Nursing intervention for clients with chemotherapy related anxiety and fatigue can be promoted by giving Non-pharmacological intervention like back massage.

Review of Literature

CHAPTER – II

REVIEW OF LITERATURE

"Study the past if you would divine the future"

-Confucius

The related literature review for the study is divided in to 3 parts

1. Literature related to chemotherapy related fatigue
2. Literature related to chemotherapy related anxiety.
3. Literature related to use of back massage in reducing chemotherapy related fatigue and anxiety.

2.1 LITERATURE RELATED TO CHEMOTHERAPY RELATED FATIGUE

Guru karthikeyan, Divita Jumnani,Rama Prabhu (2013) conducted a study in India including a total of 121 cancer patient receiving radiotherapy, chemotherapy and concurrent chemo radiation with the age group of above 15 years. All the patients were assessed for severity of fatigue using Brief fatigue inventory and for quality of life using FACT G scale while they were receiving the anti cancer therapies The result showed that the severe fatigue was more prevalent in patients chemotherapy (58\59 98.30%), and con current chemo radiation (33\4278.57%)as compared to patients receiving radiotherapy (moderate 9/20 (45%).moderate correlations were exhibited between fatigue due to radiotherapy and QOL($r=0.71, p<0.01$),Where as weak correlation was found between fatigue due to chemotherapy and concurrent chemo radiation.

Curt GA, Breitbart W, Cella et al. (2010) conducted a study to confirm the prevalence and duration of fatigue in the cancer population and to assess its physical,

mental, social, and economic impacts on the lives of patients and caregivers. A 25-minute telephone interview was completed with 379 cancer patients having a prior history of chemotherapy. Patients were recruited from a sample of 6,125 households in the United States identified as having a member with cancer. Patients reporting fatigue at least a few times a month were asked a series of question to better describe their fatigue and its impact on quality of life. Seventy-six percent of patients experienced fatigue at least a few days each month during their most recent chemotherapy; 30% experienced fatigue on a daily basis. Ninety-one percent of those who experienced fatigue reported that it prevented a “normal” life, and 88%indicated that fatigue caused an alteration in their daily routine. Fatigue made it more difficult to participate in social activities and perform typical cognitive tasks. Of the 177 patients who were employed, 75%changed their employment status as a result of fatigue.

Kangas M, Bovbjerg DH,(2010) conducted a systematic and meta-analytic review of non-pharmacological therapies for cancer patients found that Cancer-related fatigue (CRF) is a significant clinical problem for more than 10 million adults diagnosed with cancer each year worldwide. No "gold standard" treatment presently exists for CRF. To provide a guide for future research to improve the treatment of CRF, the authors conducted the most comprehensive combined systematic and meta-analytic review of the literature to date on non-pharmacological (psychosocial and exercise) interventions to ameliorate CRF and associated symptoms (vigor/vitality) in adults with cancer, based on 119 randomized controlled trials (RCTs) and non-RCT studies. Meta-analyses conducted on 57 RCTs indicated that exercise and psychological interventions provided reductions in CRF, with no significant differences between these 2 major types of interventions considered as a whole.

Linda F. Brown and Kurt Kroenke (2009) conducted a study to review assess evidence regarding associations of cancer related fatigue with depression and anxiety. Database searches yielded 59 studies reporting correlation coefficients or odds ratios. The Results Combined sample size was 12,103. Average correlation of fatigue with depression, weighted by sample size, was 0.56 and for anxiety, 0.46. Thirty-one instruments were used to assess fatigue; Confidence intervals (95%) were calculated using Fisher's *z* transformation. They concluded that Depression and anxiety are prominent among the correlates of CRF; however, the nature and direction of causality among these variables remains uncertain,

David H. Henry, Hema N. Viswanathan, et al (2007) Conducted a cross-sectional study on results from an online survey and a telephone survey conducted in 2006 in United States America. All patients were currently receiving or had received chemotherapy or radiation therapy during the 12 months prior to the survey. Fatigue was the most common side effect of cancer therapy, reported by 79% of respondents. Almost two out of three patients rated their fatigue to be debilitating, and one in three patients considered a reduction in fatigue to be very important—but only 27% of those affected had received treatment for their fatigue. Respondents currently receiving chemotherapy and/or radiotherapy reported significantly worse levels of fatigue ($P < 0.0001$); however, no significant association was found between the duration of primary cancer and fatigue.

Osborn, demoncada Feuerstein (2006) conducted a study on psychosocial intervention such as cognitive behavioral therapy and patient education for anxiety and fatigue in patients with cancer. Adult patient with cancer of all types and all stages and control group measurable outcomes of interest on anxiety, depression, fatigue, pain physical function on are selected total sample of 1492 adult cancer

survivors aged between 18-84 years 790 patients were assigned to intervention and 702 were assigned to control group. cognitive behavioral therapy is effective for short term management of anxiety of fatigue pain it revealed a large effect size for individual treatment (d-0.03, p-0.82,95%)The single trial using patient education to decrease anxiety and fatigue resulted in no short term effect on anxiety and fatigue and did not include long term follow up on anxiety and fatigue (d-0.02,p-0.89).

2.2 LITERATURE RELATED TO CHEMOTHERAPY RELATED ANXIETY

Manoj Pandey and colleagues (2011) conducted a study to evaluate Distress, anxiety, and depression in cancer patients undergoing chemotherapy. A total of 117 patients were evaluated by using distress inventory for cancer (DIC2) and hospital anxiety and depression scale (HADS). Majority of the patients were taking chemotherapy for solid tumors (52; 44.4%).The mean distress score was 24, 18 (15.38%) were found to have anxiety while 19 (16.23%) had depression. High social status was the only factor found to influence distress while female gender was the only factor found to influence depression in the present study. The study highlights high psychological morbidity of cancer patients and influence of gender on depression. Construct of distress as evaluated by DIC 2 may have a possible overlap with anxiety.

Lee, M.K. (2011) conducted a prospective cohort study at national cancer center to assess the awareness of incurable cancer status and health related quality of life among advanced cancer patients to examine the effects of patients awareness of disease status undergoing palliative chemotherapy, patients were followed up at 4-6 weeks and 2-3 months after the initiative palliative chemotherapy of these the patients who were aware of their disease status as incurable had significant higher role

(p-0.002), lower fatigue (p-0.008),anxiety(p-0.041)compared with patients unaware of disease status.

Gravis (2011) conducted a study at department of medical oncology France: to assess the full access to medical records does not modify anxiety in cancer patients: state trait anxiety inventory before during and at the end of the treatment. Patient satisfaction and perception of the organized medical records (OMR) were evaluated using a specifically designed questionnaire at the end of the treatment. The patient who has full access to their medical record were more satisfied with information (odds ratio), (1.68) :(95%) confidence interval, (1.083) but the difference was not statistically significant at 5% level.

Grace Pereira, M., Ana Paula Figueiredo., & Frank Fincham, D. (2011) conducted a study with Portuguese patients and their partners were recruited from an oncology hospital in the north of Portugal to examine the impact of different modes of treatment on depression, anxiety, traumatic stress and quality of life in colorectal cancer patients and 67 partners. Participants had been submitted to three modes of treatment: surgery, surgery plus chemotherapy or surgery followed by radiotherapy. The results showed significant differences in anxiety, depression and traumatic stress symptoms among the three groups.scheffe tests showed that patients who undergone surgery\chemotherapy had more anxiety (p-0.001), more depression (p-0.005) and more traumatic symptoms p(p-0.001) when compared to the surgical group.

Pelin gunari., olea surge veil & hayel Boyaciaglu (2009) conducted a case control study from turkey to assess anxiety levels among 83 primary oral care patients. Fifty eight randomly selected subjects were contributed as the healthy control group. A questionnaire (STAI-2) was applied to both groups .the scores of the group was analyzed with independent sample t test. The mean scores provided for

STAI-2 were 37.7 +_ 7.53 for the cancer patients and 38.52 +_7.84 for healthy controls: the difference was insignificant (p>0.05).The highest STAI-2 score provided by oral cancer patients was 3.241 in the control group: revealing somewhat little bit more anxious state than the healthy controls.

Winnie ,K.W., Gene Marsh., Ling, W. M., & Leung, F.Y (2009) conducted a cross sectional study on anxiety, depression and quality of life among Chinese breast cancer patients during adjuvant therapy to examine anxiety and depression and their effects on the quality of life (QOL) of patients with breast cancer undergoing chemotherapy or radiotherapy. A cross sectional descriptive design was used. Data was collected from a self-report survey derived from the hospital anxiety and depression scale. (HADS).the study group consisted of 218 women (>18 years old) who were midway through chemotherapy or radiation therapy for stage I-III breast cancer. The percentage of participants with anxiety (x^2=6.56, p=0.01) or depression (x^2 =7.26.p=0.007) was higher in the chemotherapy group. More participants in the chemotherapy group had both anxiety and depression than those in the radiotherapy group.

Dr.siew Yim Loh. & Xavier. (2009) conducted a study on depression, anxiety and stress before and after a patient self management intervention in a cohort of 147 women newly diagnosed with breast cancer. A time series clinical trial (n=147)with an experimental block (n=69) followed by a control block (n=78).by using HADS scale participants were assessed on their levels of depression ,anxiety and stress at baseline (T1),at 4 weeks (T2) and at 8 weeks (T3)after the intervention. Analysis of variances showed that there were significant differences in the change scores and the levels of depression, anxiety and stress generally decreased

significantly in the experimental groups but either maintained or increase in the control group.

Susanne sehlan. (2007) conducted a study was to investigate stress in tumor patients by means of a cancer-specific questionnaire in the course of radiotherapy among 265 of 446 patients (157 male,108 female).disease specific aspects of psychosocial stress were self –assessed by patients with different tumor types before radiotherapy (ti1),after radiotherapy(ti2),and 6 weeks after the end of radiotherapy (ti3).significant increases in stress were observed for anxiety, pain, and information at ti3 ($p<0.001$,$p=0.035$).women showed significantly higher stress from before radiotherapy, younger patients displayed a decrease in anxiety, where as elderly patients demonstrated an increase ($p=0.016$).breast cancer patients had the highest stress levels.

Lim Devi, MK (2001) conducted a study at national university of Singapore to assess the anxiety in women with breast cancer undergoing treatment, using a randomized controlled trails and descriptive studies that examined anxiety level in women with breast cancer of stage 0 to stage III a over and equal to 21 and below 65 years of age ,who were undergoing\had undergone treatment restricted to chemotherapy, radiotherapy and \or surgery, anxiety level in women who underwent chemotherapy was highest before the first chemo infusion ,mediated by age and trait anxiety.

2.3 LITERATURE RELATED TO USE OF BACK MASSAGE IN REDUCING CHEMOTHERAPY RELATED FATIGUE AND ANXIETY

Taylor et al (2014) conducted a prospective, randomized study with two groups: a usual care alone control group (UC) and a massage therapy intervention

plus usual care group (MT). Usual care alone consisted of the standard treatment protocol for Acute Myeloid Leukemia.The following questionnaires were completed by all participants at baseline: European Organization for Research and Treatment of Cancer core questionnaire (EORTC-QLQ-C30), the state scale of the State-Trait Anxiety Inventory-Form Y (STAI-Form Y), and the short-form McGill Pain Questionnaire (SF-MPQ) to evaluate the constructs of HQoL, anxiety, and pain, respectively. Participants in the UC group completed the same weekly questionnaires and rating scales as those in the MT group. Significant improvements in levels of stress and health-related quality of life were observed in the massage therapy group versus the usual care alone group, after adjusting for anxiety level, including both immediate and cumulative effects of massage.

Karagozoglu S, Kahve E. (2013) conducted a quasi-experimental and cross-sectional study to determine the efficacy of back massage, a nursing intervention in Turkey, on the process of acute fatigue developing due to chemotherapy and on the anxiety level emerging in cancer patients receiving chemotherapy during this process. The study was conducted on 40 patients. To collect the data, the Personal Information Form, the State Anxiety part of Spielberger State-Trait Anxiety Inventory and the Brief Fatigue Inventory were used. In our study, it was determined that mean anxiety scores decreased in the intervention group patients after chemotherapy. The level of fatigue in the intervention group decreased statistically significantly on the next day after chemotherapy (p=.020; effect size=0.84). At the same time, the mean anxiety scores of the patients in the intervention group decreased right after the massage provided during chemotherapy (p=.109; effect size=0.37) and after chemotherapy**.** In line with their study findings, it can be said that back massage given during

chemotherapy affects anxiety and fatigue suffered during the chemotherapy process and that it significantly reduces state anxiety and acute fatigue.

Toth M, Marcantonio ER, Davis RB, (2013) conducted a randomized controlled trial to determine the feasibility and effects of providing therapeutic massage at home for patients with metastatic cancer in Boston. Patients were enrolled at Oncology Clinics at a large urban academic medical center; massage therapy was provided in patients' home. There were three interventions: massage therapy, no-touch intervention, and usual care. Primary outcomes were pain, anxiety, and alertness; secondary outcomes were quality of life and sleep. The mean number of massage therapy sessions per patient was 2.8. A significant improvement was found in the quality of life of the patients who received massage therapy after 1-week follow-up, which was not observed in either the No Touch control or the Usual Care control groups, but the difference was not sustained at 1 month. There were trends toward improvement in pain and sleep of the patients after therapeutic massage but not in patients in the control groups. There were no serious adverse events related to the interventions.

William collinge, Gayle MacDonald, and Tracy Walton (2012) conducted a study with an objective to review recent findings on the utilization of massage by cancer patients, including evidence of effects in supportive and palliative cancer care, current understanding of safety considerations and adaptations needed, education of professional and family caregivers to provide this form of support, and guidelines for oncology nurses in referring patients from data sources in Journal articles, government and special health reports, book chapters, and web-based resources concluded the massage profession and the disciplines of clinical oncology have experienced a rapprochement in recent decades over questions of safety and efficacy.

And proposed some implications that Massage offers significant potential for benefiting quality of life when applied with proper understanding of the adaptations needed to accommodate the needs and vulnerabilities of cancer patients.

Hodgson NA, Lafferty D. (2012) investigated and compared the effects of reflexology and Swedish massage therapy on physiologic stress, pain, and mood in older cancer survivors residing in nursing homes. An experimental, repeated-measures, crossover design study of 18 nursing home residents aged 75 or over and diagnosed with solid tumor in the past 5 years and following completion of cancer treatments. The intervention tested was 20 minutes of Swedish Massage Therapy to the lower extremities, versus 20 minute Reflexology, using highly specified protocols. Pre- and post-intervention levels of salivary cortisol, observed affect, and pain were compared in the Swedish Massage Therapy and Reflexology conditions. Both Reflexology and Swedish massage resulted in significant declines in salivary cortisol and pain and improvements in mood. Preliminary data suggest that studies of Swedish Massage Therapy and Reflexology are feasible in this population of cancer survivors typically excluded from trials. Both interventions were well tolerated and produced measurable improvements in outcomes.

S.M. Sagar MD, T. Dryden MEd R.K. Wong MDA (2011) conducted a prospective randomized trial from the department of radiation oncology, CHUM Hospital Notre-Dame, and the Canadian Touch Research Centre in Montreal evaluated the effects of massage therapy on anxiety levels in patients undergoing radiation therapy. In a 6-month period, 100 patients undergoing radiation therapy were randomly assigned to either massage sessions or control sessions. The massage group received a 15-minute massage session before radiotherapy over 10 consecutive days. The control group did not receive massage. The State–Trait Anxiety Inventory

and a Visual Analog Scale was used to evaluate both groups. Following massage, anxiety scores in the patients were significantly reduced (by 43%) as compared with pre-massage scores. In both groups, patients experienced an average 20% reduction in anxiety between the first and the last radiotherapy session, but that result did not reach statistical significance. The massage therapy was associated with an immediate significant decrease in anxiety scores before radiotherapy (procedural anxiety), but it appeared to have no major impact on situational anxiety.

Nahid Aghabati, Eesa Mohammadi and Zahra Pour Esmaiel (2008) conducted a randomized and three-groups experimental study experimental (TT), placebo (placebo TT), and control (usual care) was carried out. Ninety patients undergoing chemotherapy, exhibiting pain and fatigue of cancer, were randomized into one of the three groups in the Cancer Center of Imam Khomeini Hospital in Tehran, Iran. Pain and fatigue were measured and recorded by participants before and after the intervention for5 days (once a day). The intervention consisted of 30 min The Visual Analogue Scale (VAS) of pain and the Rhoten Fatigue Scale (RFS) were completed for 5 days before and after the intervention by the subjects. The TT (significant) was more effective in decreasing pain and fatigue of the cancer patients undergoing chemotherapy than the usual care group, while the placebo group indicated a decreasing trend in pain and fatigue scores compared with the usual care group. The repeated measured ANOVA (the means of difference between the VAS pain scores before and after intervention) showed that there are significant differences between three groups within the 5 days of intervention (F=2.01, df=8, P=0.04, n=90).

Currin j, Meister EA (2008) conducted a study to assess the impact of Swedish massage intervention on oncology patients perceived level of distress. Each patient's distress level was measured using 4 distinct dimensions: pain, physical

discomfort, emotional discomfort and fatigue. A total of 251 oncology patients volunteered to participate in this non randomized single-group pre-and post design study for over a 3-year period at a university hospital setting in south eastern Georgia. The analysis found a statistically significant reduction in patient reported distress for all 4 measures: pain (F=638.208, P=0.000). Physical discomfort (F=742.575, p=0.000), emotional discomfort (F=512.000, P=0.000) and fatigue (F=597.976, P=0.000). This reduction in patients distress was observed regardless of gender, age, ethnicity or cancer type.

Campeau, M.P., Gaboriault, R., Drapeau, (2007) conducted a randomized controlled trail at Norway .This randomized phase III trial evaluated the effects of massage therapy on anxiety levels in patients undergoing chemotherapy.100 patients undergoing chemotherapy were randomly assigned to either 10 massage sessions or control sessions. Anxiety levels were evaluated throughout the course of treatment using the both visual analog scale (VAS) and the state-Trait Anxiety Inventory (STAI).The immediate effects of massage therapy on anxiety scores was measured via pre and post massages VAS score. The intermediate term effect of massage was assessed through the VAS scores over the 10 sessions and STAI scores at the last session. The trails primary outcome was the difference in the immediate anxiety scores. After the massage ,the patients immediate post massage anxiety score according to VAS was reduced by an average of 45% compared with their pre massage score ($p<0.001$).both group showed a similar decline in VAS anxiety scores from the first to last session, that is ,15% and 19% in the massage therapy and control group, respectively.

2.4 CONCEPTUAL FRAME WORK

A theoretical frame work is analogous to the frame of the house.

Just as the foundation supports a house, a theoretical frame work provides a rationale for predictions about the relationships among variables of a research study.

Conceptual frameworks or models are used to guide research studies, nursing practice and educational programs, all frameworks are based on the identification of key concepts and the relationship among those concepts.

The most common use of conceptual models is to provide an organizing structure for the research design and methods. A second purpose is to guide the development and testing of interventions and hypotheses based on the tenets of the theory. A third function is to explain the study results and place the findings within the context of science in a specific field of investigation. The interpretation of findings flows from the conceptualization represented by the framework. A theoretical framework often includes propositional statements describing the relationships among variables and has received more testing than the more tentative conceptual model (Polit & Beck 2004).

The conceptual frame work of the present study is based on the **Dr.Martha roger's "science of unitary human being"**. Rogerian model provides way of viewing the unitary human being. Human beings are viewed as integral with the universe. The unitary human being and the environment are the one. Nursing focuses on people and manifestation that emerge from environmental field process. Rogers proposes non-invasive complimentary therapy and interventions meant to coordinate rhythm between human and environmental field. It helps patient in process of change and move towards better health.

Rogers (1983) postulates that the human and environmental fields are identified by wave patterns, and that change is propagated by waves. Nursing interventions such as Therapeutic Touch are directed towards promoting the rhythmic flow of energy waves that order and re-order the human field. Symptoms are viewed as energy blockages, congestion, fatigue, or areas of imbalance in the field.

The main concepts include unitary human being (human field).environmental energy field, openness, pattern, pan dimensionality and unitary human health.

Unitary human being

Unitary human being is defined by roger as an irreducible, indivisible, pan dimensional energy field identified by pattern and manifesting characteristics. In this study unitary human being refers to patient receiving chemotherapy admitted in oncology ward of GRH Madurai.

Environmental energy field

According to roger environmental field is specific, irreducible, infinite, identified by pattern and integral to human field. In this study environmental field refers to changes in living situation, social isolation, physical weakness, bodily changes and anxiety which are developed from all dimensions.

Openness

Energy fields are open, not a little bit or sometimes but continuous and non-variant.

Openness is defined by roger as human and environment are continuous process and are open system and human field and environmental fields are constantly

changing their energy. In the present study it says environmental field has impact on human field**.**

Pan dimensionality

Pan dimensionality is a non-linear domain without spatial or temporal attributes it speaks about all dimensions of health including physical, mental and social wellbeing.

Pattern

Pattern changes continuously. The change, according to Rogers is continuous. Relative, innovative, increasingly diverse and unpredictable.

Pattern is defined as the distinguishing characteristics of an energy field perceived as a single wave and can lead to pattern manifestations. In this study it refers to lack of energy, prologned sadness and results in physical, psychological, emotional, and social and behavioral manifestations.

The three dimensions of the concept of homeodynamics, or the principles of homeodynamics, concisely explicate Rogers's ideas about human and environmental energy field patterns. The three mutually exclusive principles are equally applicable to individual energy fields and group energy fields, as well environmental energy fields.

Integrality

Integrality is the continuous, mutual, simultaneous interaction process between human and environmental fields. In this study integrality refers to which is ongoing and which happens over life time. It is the nature of the relationship between the

human and environmental fields. In the present study it can be mood fluctuations and deteriotion of health.

Resonancy

It is the continuos, change from lower to higher frequency wave patterns in human and environmental fields. Resonancy speaks the nature of change occurring between human and environmental fields in the present study it can be emotional fluctuation, detoriation of health.

Helicy

Helicy deals with the nature and direction of change in the human environmental field. In this study it refers to the worsening of condition due to repeated chemotherapy.

Unitary human health

Unitary human health is good health of a human field which has less impact of any pattern manifestations. In the present study patient receiving chemotherapy feels comfortable and relaxed.

Nursing practice

Nursing practice is the process by which body of theoretical knowledge is used for assisting human being. It is a science that is humanistic and humanitarian.

It includes:

- **Pattern appraisal**

Pattern appraisal deals with identifying the pattern manifestations shown by the human field. In the present study it is done by using brief fatigue inventory and spielberger state anxiety inventory.

- **Mutual patterning**

This component refers to what typically is regarded as the intervention phase of the nursing process.

1. Mutual patterning is to participate in the process of change by provision of different modes of health patterning, including such noninvasive modalities as therapeutic touch, so that people may benefit. In the present study 15 minutes of back massage is provided for the patients receiving chemotherapy in experimental group.
2. Provision of chemotherapy to the patients in the control group.

- **Evaluation**

A complete pattern appraisal is repeated in the evaluation phase. In the present study it is done using the brief fatigue inventory and spielberger state anxiety inventory.

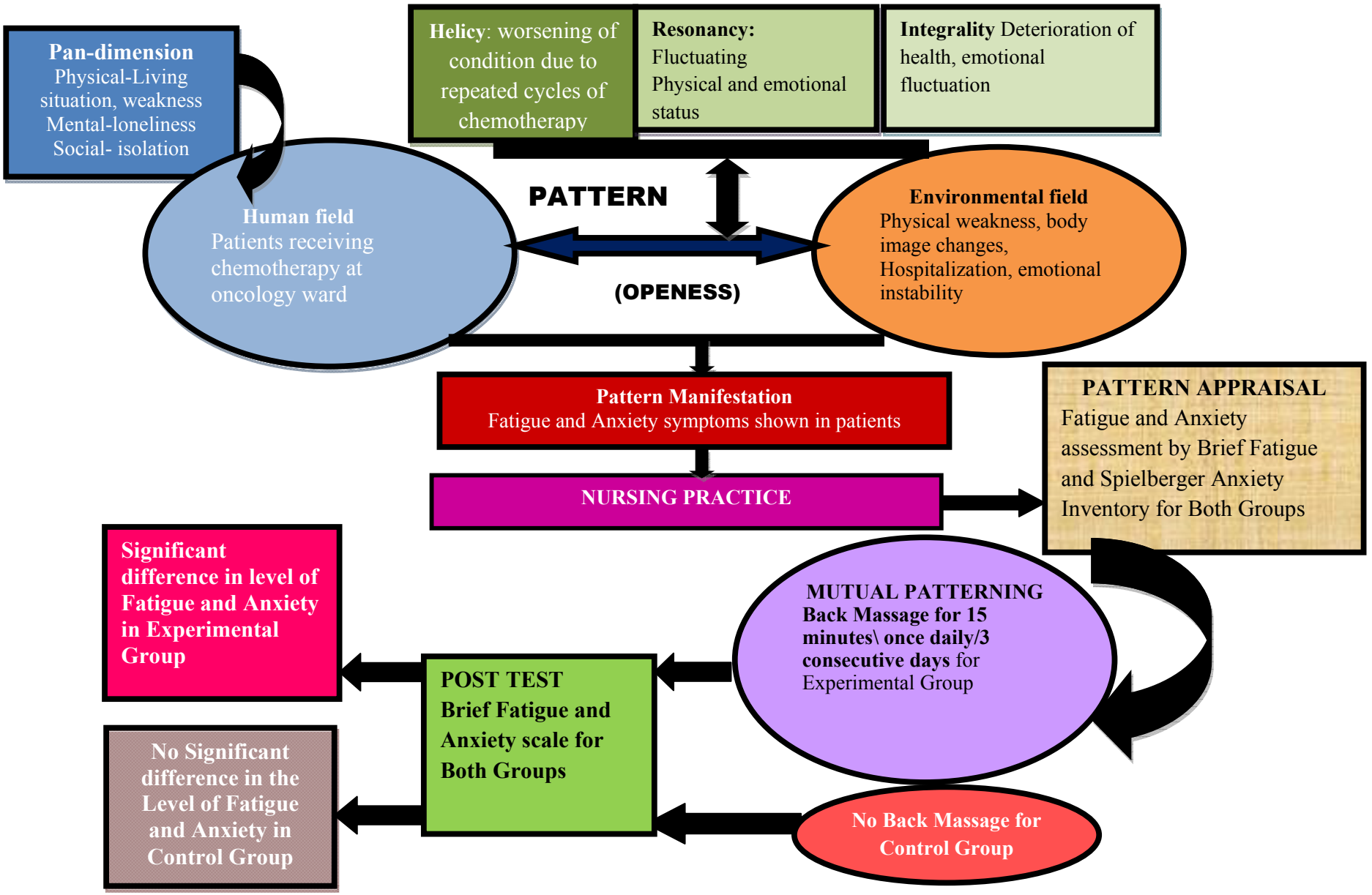


Figure 1 : Modified Dr.Martha Rogers –Science of Unitary Human Being Model (1992)

Methodology

CHAPTER - III

RESEARCH METHODOLOGY

"**Research is to see what everybody else has seen and to think what nobody else has thought"**

- Albert szent

Research methodology is the science of method; the science dealing with the principles of procedure in a research study. It is the section of a research proposal in which the methods to be used are described, such as the research design, the population to be studied, and the research instruments, or tools, to be used etc.

This chapter describes the methodology adopted for evaluating effectiveness of back massage on reducing the Anxiety and Fatigue among the patients receiving chemotherapy in oncology wards of Government Rajaji hospital, Madurai. The methodology includes the research design, setting of the study, population, sample and sample size, samplingtechnique, description of the tool, method of data collection and plan for data analysis.

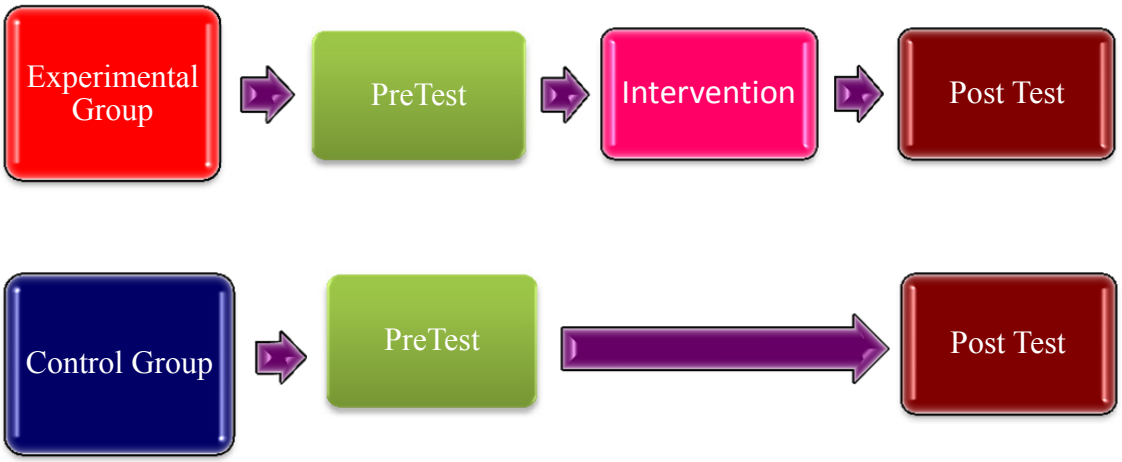
3.1 RESEARCH APPROACH

Research approach is a systematic, controlled, empirical and critical investigation of natural phenomenon guided by theory and hypotheses about the presumed relations among such phenomenon.

A quantitative approach was adopted by the researcher to evaluate the effectiveness of back massage on fatigue and anxiety among patients receiving chemotherapy in oncology ward.

3.2 RESEARCH DESIGN

The research design used for this study was quasi experimental Non-equivalent control group design.



3.3 RESAERCH VARIABLES

Independent variable

Back Massage.

Dependent variable

Anxiety and Fatigue among the Patients receiving Chemotherapy.

3.4 SETTING OF THE STUDY

Setting is the physical location and condition in which data collection takes place.

The study was conducted at the medical oncology ward of Government Rajaji Hospital, Madurai. It is the second biggest medical college hospital in Tamil nadu.it has all specialty departments and caters to the health needs of the people of the southern Tamil Nadu. The Oncology department has three wings Medical ,Surgical

and Radiation, Each with the bed strength of 50,60 and 43 respectively, with an annual census of 7000 patients. Averages of 500 new cases, 300 old cases are attending the out-patient per month and an average of 300 patients admitted in medical oncology wards\month.

3.5 POPULATION

Population means all possible elements that could be included in research. It represents the entire group under study.

Target population

The target populations selected for the study comprised of all cancer patients receiving chemotherapy.

Accessible population

The study populations were patients receiving chemotherapy admitted in Oncology Ward, Government Rajaji Hospital, Madurai.

3.6 SAMPLE

Patient receiving chemotherapy with fatigue and anxiety who met the selection criteria treated at Oncology Ward of Government Rajaji Hospital, Madurai-20.

3.7 SAMPLE SIZE

Sample size = 60

Experimental = 30

Control = 30

3.8 SAMPLING TECHNIQUE

The researcher adopted Non probability –Consecutive Sampling Technique to select the subjects for the study.

3.9 CRITERIA FOR SAMPLE SELECTION

Inclusion criteria

- Participants of both Genders.
- Participants in age group of 20 – 60 years.
- Receiving more than two cycles of chemotherapy.
- Duration of stay in hospital for 3-5days.

Exclusion criteria

- Those who participated in pilot study.
- Those who are not willing to give consent.
- Patient with visible and palpable tumor.
- Subjects receiving combined therapy.(Radiation and Chemotherapy)
- Subject's undergone surgery within last one month.
- Critically ill and altered level of consciousness

3.10 DEVELOPMENT AND DESCRIPTION OF THE TOOL

The tool used in this study consists of two sections:

SECTION A

A Semi-Structured Interview Schedule consist of 10 items of Demographic data such as (Age, Gender, Marital status, Occupation, Residence, Religion, Activity, Family Monthly Income, Social Support) and 4 items of clinical variables such as

(site/Organ-part Involved, Duration of Illness, Opinion about Cancer, Number of Chemotherapy Cycles) prepared by the researcher and validated by the experts.

SECTION B

Standardized tool was Brief fatigue Inventory consisted of 9 item, with the items measured on 0-10 numeric rating scales to measure level of fatigue among patient receiving chemotherapy.

SECTION C

Standardized State Trait Anxiety Inventory (state part) consisted of 20 items rating in 4 point likert scale to measure level of anxiety among patient receiving chemotherapy.

SCORING AND INTERPRETATION

SECTION B

The Brief Fatigue Inventory has only nine items, with the items measured on 0-10 numeric rating scale.

The interference items are measured on a 0-10 scale, with 0 being "does not interfere" and 10 being "completely interferes.

Fatigue was categorized using the BFI as either.

LEVEL	SCORE
Mild	0-3
Moderate	4-6
Severe	7-10

SECTION C

Standardized state trait anxiety scale consisted of 20 items rating in 4 point likert scale to measure level of anxiety among patient receiving chemotherapy; each item is scored on a scale of

Not at all	Some what	Moderately so	Very much so
1	2	3	4

1, 2, 5, 8, 10, 11,15,16,19 and 20 are reversely coded.

3, 4, 6,7,9,12,13,14,17,18 are forwardly coded.

INTERPRETATION

LEVEL	SCORE
Mild	20-40
Moderate	41-60
Severe	61-80

3.11 CONTENT VALIDITY

In order to measure the content validity, the questionnaire was given to experts in the field of nursing and one physician. They were requested to judge the items for clarity, relatedness, meaningfulness and adequacy of the contents. Suggestions were considered and appropriate changes were made and found to be valid. Tool was translated in Tamil and retranslated by experts to confirm language validity.

3.12 RELIABILITY OF TOOL

The reliability of the tool was tested using test-retest method .The value ranged from 0.31 to 0.86 for anxiety scale and For Brief fatigue scale value ranges from 0.82 to 0.97 respectively. Hence the tool was considered highly reliable for proceeding with the main study.

3.13 REPORT OF PILOT STUDY

A pilot study was conducted to find out the reliability of tool and feasibility of conducting the study. The study was conducted in oncology ward, GRH, Madurai-20 for patients receiving chemotherapy in the period of one week from 1.8.14 to 7.8.14.Initially the patients were explained about the study and informed consent was obtained. According to the inclusion criteria 10 subjects -5 subjects for experimental group and 5 for Control group were selected. Pretest was conducted by using state anxiety scale and brief fatigue scale for both control and experimental group and then back massage was given for 15 minutes for 3 consecutive days for subjects in experimental group. On the third day post test was conducted using the same scales among subjects in both experimental and control group. Results shown that there was significant difference in pre assessment scores and post assessment scores of chemotherapy related anxiety and fatigue among patients receiving chemotherapy at oncology ward. Through pilot study it was proved that back massage is helpful in reducing the chemotherapy related fatigue and anxiety among patients receiving chemotherapy at oncology ward. After the pilot study back massage was done to the control group.

3.14 DATA COLLECTION PROCEDURE

The investigator obtained formal permission to conduct the study from respective authorities and dissertation committee of Madurai medical college Madurai. Data collection period was from 12.08.2014 to 15.09.2014 for 4-6 weeks. Samples were screened under selection criteria and selected by Consecutive Sampling Technique. Initially the patients were explained about the study and informed consent was obtained. The researcher introduced herself to the selected subjects Demographic and Clinical data collected. Pretest was conducted by using State Anxiety Inventory and Brief Fatigue Inventory for both the groups. Back massage (effleurage, petrissage, tapotment and vibration) was given to the experimental group for about 15 minutes for 3 consecutive days. On the third day post test was conducted using same tool for experimental and control group.

3.15 PLAN FOR DATA ANALYSIS

The data collected was subjected to statistical analysis using descriptive and inferential statistics. Demographic variable and clinical variable of subjects were analyzed using methods of frequency and percentage distribution. Mean and standard deviation were used to analyze the anxiety and fatigue level among the patients receiving chemotherapy in medical oncology ward.paired‘t’ test was used to determine effectiveness of back massage on anxiety and fatigue among patient receiving chemotherapy. Chi-square test was used to find out the association between the post test anxiety and fatigue score with selected demographic and clinical variable in experimental group. Correlation was done to find the relationship between anxiety and fatigue. They were expressed in the form of figures and tables.

3.16 ETHICAL CONSIDERATION

The proposed study was conducted after the approval of dissertation committee of the College of Nursing, Madurai Medical College, Madurai-20.Inorder to protect the human rights, ethical committee approval obtained on the month of January 2014 from ethical committee, Madurai Medical College, Madurai. Both written and verbal consent was obtained from all the study subjects and the data collection was kept confidential. The possible benefit of participating in the study was explained to all the samples. Reassurance was given to the study samples, that confidentiality and privacy was maintained throughout the study.

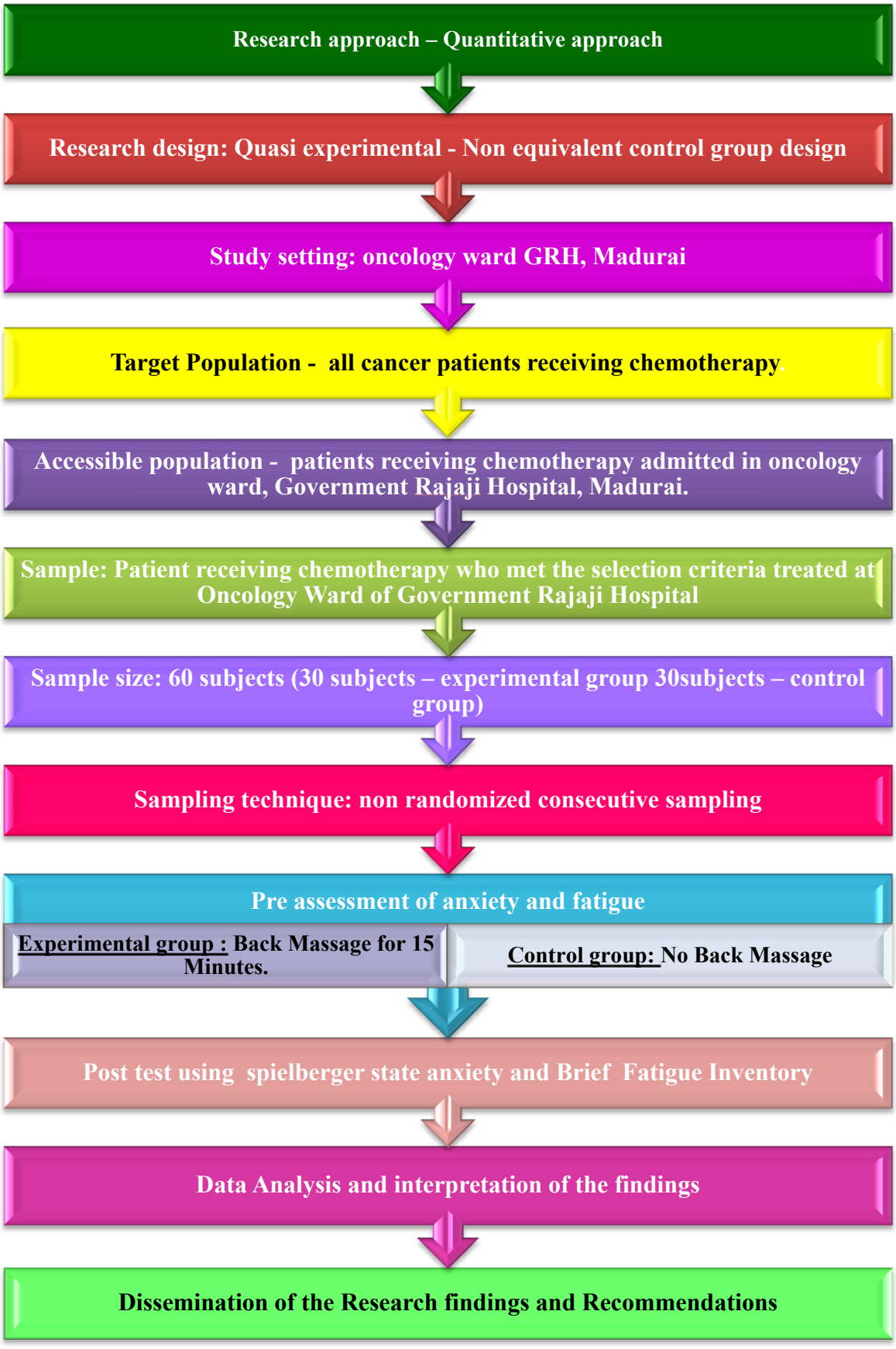


Figure 2 : Schematic Representation of the study

Data analysis and Interpretation

CHAPTER - IV

DATA ANALYSIS AND INTERPRETATION

"The results you achieve will be in direct proportion to the effort you apply"

-Dennis waitle

The data analysis and interpretation section deals with what was found by conducting the study. The goal of data analysis is to provide answers to the research questions. The plan for data analysis comes directly from the question, the design, the method of data collection, and the level of measurement of the data. Statistical procedures enable researchers to summarize, organize, evaluate, interpret, and communicate numeric information.

In this chapter the data collected were edited, tabulated, analyzed and interpreted.

SECTION: I

Distribution of samples according to their demographic variables.

SECTION: II

Distribution of samples according to their clinical variables.

SECTION: III

Effectiveness of Back massage on Fatigue and Anxiety.

SECTION: IV

Association of posttest level of Fatigue and Anxiety with selected Demographic Variables and Clinical Variables in Experimental Group.

SECTION: V

Correlation between fatigue and Anxiety in Both Groups.

SECTION: I

DISTRIBUTION OF SAMPLES ACCORDING TO THEIR DEMOGRAPHIC VARIABLES

Table 1: FREQUENCY AND PERCENTAGE DISTRIBUTION OF DEMOGRAPHIC VARIABLES IN EXPERIMENTAL AND CONTROL GROUP

n-60

DEMOGRAPHIC VARIABLES			Experimental group n =30		Control group n =30	
			f	%	f	%
1.	**Age**	a.20-30 yrs	3	10	7	23.3
		b.31-40 yrs	6	20	5	16.7
		c.41-50 yrs	13	43	13	43.3
		d.51-60 yrs	8	27	5	16.7
2.	**Sex**	a. Male	15	50	15	50
		b. Female	15	50	15	50
3.	**Religion**	a. Hindu	19	56.7	25	83.3
		b.Christian	7	33.3	3	10
		c.Muslim	4	10	2	6.7
		d.Others	0	0	0	0
4.	**Education**	a. No-formal education	9	30	8	26.7
		b.Primary education	10	33.3	11	36.7
		c.High school	6	20	8	26.7
		d.Graduate	5	16.7	3	10
5.	**Occupation**	a. Agriculture	13	43.3	10	33.3
		b. Self-employment	8	26.7	9	30
		d.Unemployed	8	26.7	9	30
		e.Govt.employee	1	3.3	2	6.7
6.	**Monthly family income**	a.3000-4000	20	68.9	12	40
		b.4000-5000	5	17.2	10	33.3
		c.5000-6000	4	13.9	7	23.3
		d. Above 6000	0	0	1	3.3

7.	**Marital status**	a. Married b.Unmarried c.Divorced d.Separated	27 2 0 1	90 6.7 0 3.3	22 8 0 0	73.3 26.7 0 0
8.	**Residence**	a. Rural b.Urban c.Semi urban	17 10 3	56.7 33.3 10	15 10 5	50 33.3 16.7
9.	**Activity**	a. Sedentary b.Moderate c.Heavy	6 20 4	20 66.7 13.3	2 20 8	6.7 66.7 26.7
10.	**Social support**	a. Parents b.Husband/spouse c.Children d.Friends/relatives	4 21 1 4	13.3 70 3.3 13.3	8 18 4 0	26.7 60 13.3 0

The above table shows that the majority of the study participants (43%) in experimental group were between 41-50 years, (27%) were between 51-60 years, (20%) were between 31-40years, and remaining (10%) were between 20-30 years. In the control group majority of the participants (43%) were between 41-50 years, (23%) were between 20-30 years, (17%) were between 31-40 years and remaining (17%) were between 51-60 years. The gender of the study participants in experimental group and control group were equally distributed (50%) were male and (50%) were female.

As far as education is concerned majority of the subjects in the experimental group (33%) attained primary education, were as (30%) of the subjects had no formal education, (20%) of the subjects attained high school education, and the remaining (17%) were graduates. Majority of the subjects in control group (37%) attained primary education, were as (27%) of the subjects attained high school education, (26%) of the subjects had no formal education and the remaining (10%) were graduates.

In view of occupation in experimental group (43%) of the subjects were farmers doing agriculture, (27%) of the subjects were self employed, (27%) were unemployed and remaining (3%) were government employees. In the control group majority of the subjects (33%) were farmers, (30%) were self employed, (30%) were unemployed and remaining (7%) were government employees. In the earning perspective in experimental group(69%) of the subjects were earning between Rs.3000-4000/.and (17%) of the subjects were earning between Rs.4000-5000 and (14%) of the subjects were subjects earning between Rs.5000-6000/.No one earned above Rs.6001/.In the control group majority of the subjects (40%) earned between Rs.3000-4000/,(33%) of the subjects earned between Rs.4000-5000/,(24%) of the subjects earned between Rs.5000-6000/,and the remaining (3%) earned more than Rs.6001and above.

With regard to religion majority of the study participants (57%) in the experimental group belonged to Hindu religion, (33%) belonged to Christians. (10%) belonged to Muslim community. In the control group (83%) of the subjects belonged to Hindu religion (10%) belonged to Christians (7%) belonged to Muslims. Majority of the study participants in the experimental group (90%) were married,(7%) were un married, and remaining(3%) were living separately. In control group (73%) of the population were married, and remaining (27%) were Un married, and no one lives separate. Large population of the subjects in experimental group (57%) hailed from rural (33%) of the subjects hailed from urban, and the remaining (10%) hailed from semi urban. Majority of the population in the control group (50%) hailed from rural, (33.3%) hailed from urban, remaining (16.7%) from semi urban.

In view of activity majority of the study population (67%) in experimental group were doing moderate activity, (20%) were sedentary workers, and remaining

(13%) were heavy workers. In control group majority of the subjects (67%) were doing moderate activity (26%) were heavy workers and remaining (7%) were sedentary workers. Majority of the study participants in the experimental group (70%) were supported by their spouse, (13%) were supported by their parents and friends, and remaining (4%) were supported by their children. In the control group majority of the subjects (60%) were supported by their spouse, (27%) were supported by the parents and remaining (13%) were supported by their children.

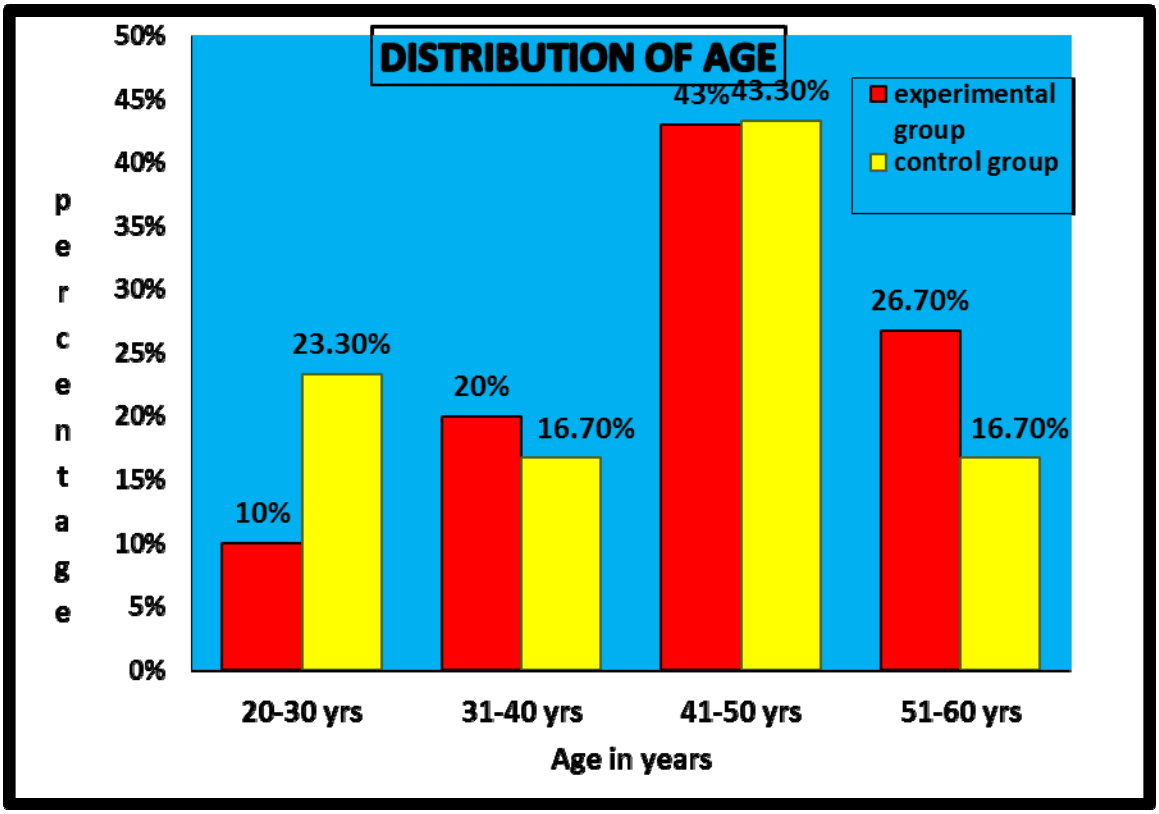


FIGURE 3 : PERCENTAGE DISTRIBUTION OF SUBJECTS ACCORDING TO THEIR AGE IN BOTH EXPERIMENTAL AND CONTROL GROUP

The above clustered bar diagram reveals that the majority of the study participants (43%) in experimental and control group is between 41-50years.

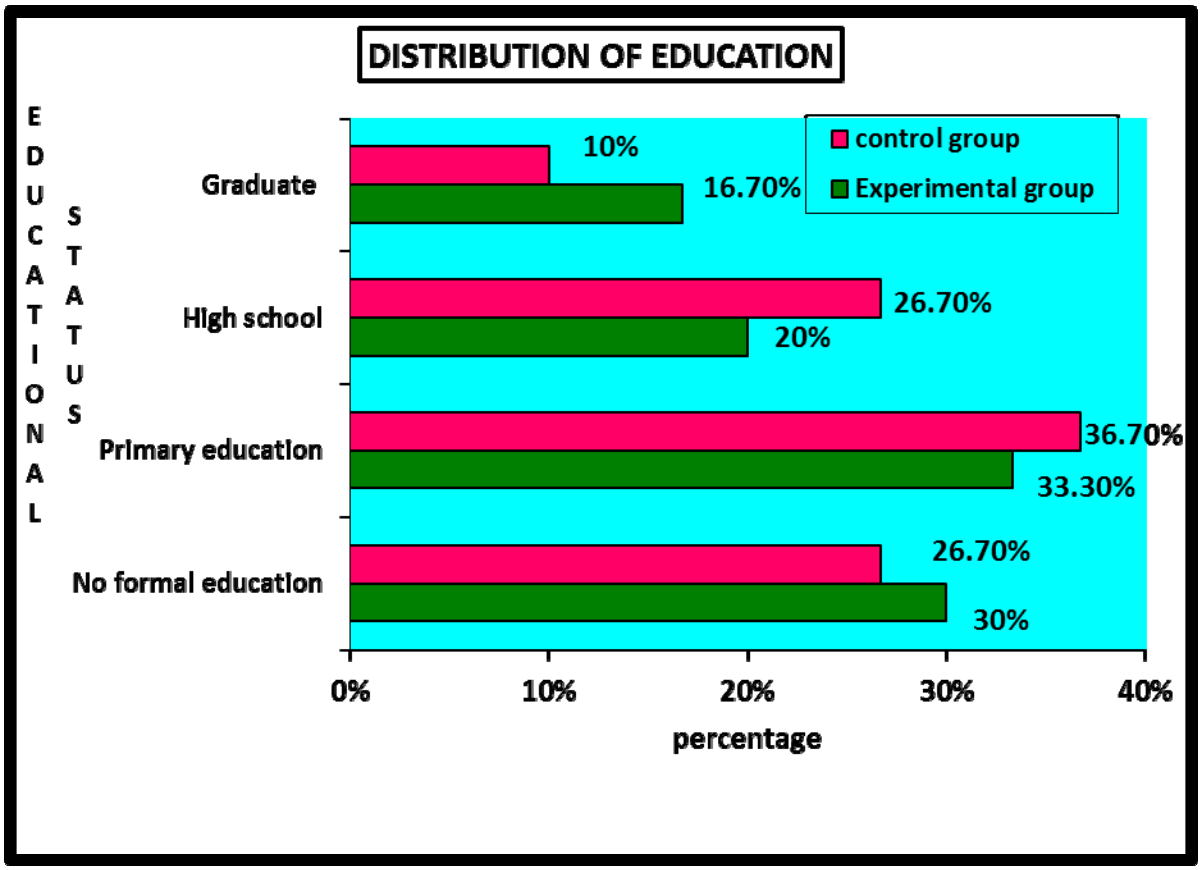


FIGURE 4 : PERCENTAGE DISTRIBUTION OF SUBJECTS ACCORDING TO EDUCATIONAL STATUS IN BOTH EXPERIMENTAL AND CONTROL GROUP.

The above horizontal bar diagram reveals that majority of the participants in the experimental group (33.3%) and control group (36.7%) attained primary education.

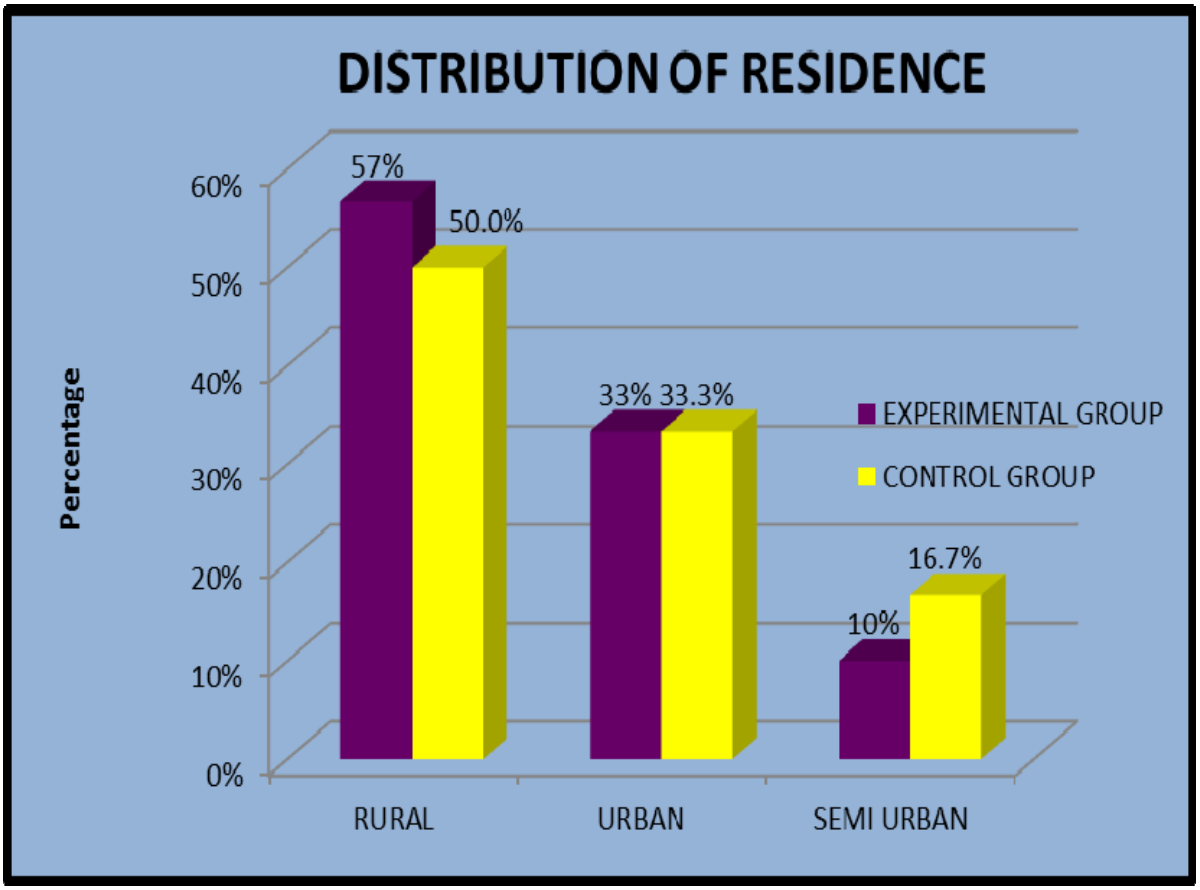


FIGURE 5 : PERCENTAGE DISTRIBUTION OF SUBJECTS ACCORDING TO THEIR RESIDENCE IN BOTH EXPERIMENTAL AND CONTROL GROUP.

The above clustered bar diagram reveals the majority of the participants in experimental group (57%) and (50%) in control group hailed from Rural area.

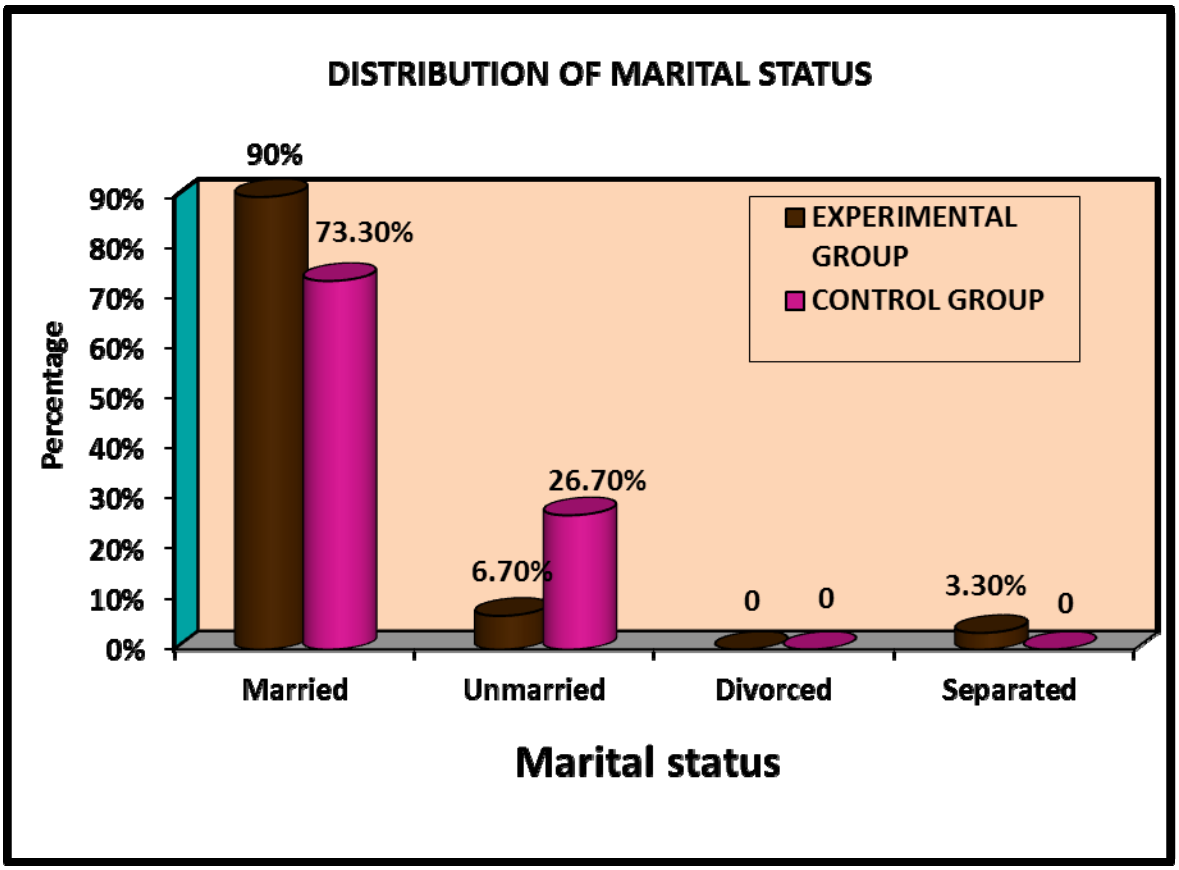


FIGURE 6 : PERCENTAGE DISTRIBUTION OF SUBJECTS ACCORDING TO MARITAL STATUS IN EXPERIMENTAL AND CONTROL GROUP.

The above clustered cylindrical diagram reveals that majority of participants in experimental (90%) and control groups (73.3%) are married.

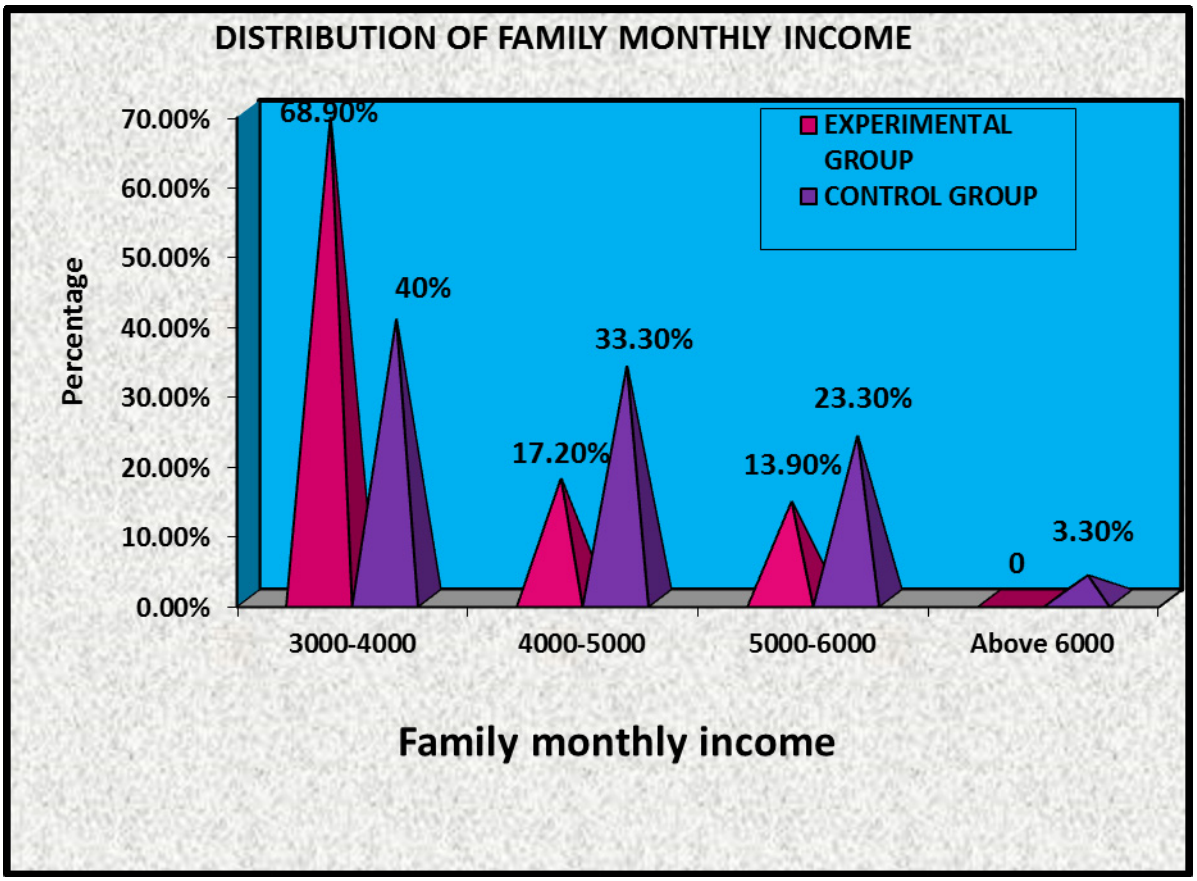


FIGURE 7 : PERCENTAGE DISTRIBUTION OF SUBJECTS ACCORDING TO FAMILY INCOME IN EXPERIMENTAL AND CONTROL GROUP.

The above clustered pyramid reveals the majority of the participants in experimental group (68.9%) and (40%) from control group earned Rs.3000-4000/month.

SECTION: II

DISTRIBUTION OF CLINICAL VARIABLES

TABLE 2 : FREQUENCY AND PERCENTAGE DISTRIBUTION OF CLINICAL VARIABLES

n=60

Clinical variables			Experimental group n =30		Control group n=30	
1	**Site/organ-part involved:**	a. Cancer breast	6	20	5	16.7
		b.Cancer lung	7	23.3	5	16.7
		c.Cancer stomach/colon/ esophagus	4	13.4	4	13.3
		d.Cancer cervix	9	30	5	16.7
		e.others (head and neck, oral cancer, blood)	4	13.3	11	36.7
2	**Duration of illness:**	a.0-1 years	7	23.3	15	50
		b.1-3 years	16	53.3	4	13.3
		c.3-5 years	5	16.7	7	23.3
		d.Above 5 years	2	6.7	4	13.3
3	**Opinion about cancer:**	a. Curable	13	43.3	19	63.3
		b.Somewhat curable	5	16.7	2	6.7
		c.Not curable	8	26.7	5	16.7
		d.I don't know	4	13.3	4	13.3
4	**Number of chemotherapy cycles :**	a.2nd cycle	3	10	8	26.7
		b.3rd cycle	9	30	6	20
		c.4th cycle	9	30	8	26.7
		d.5th cycle	9	30	8	26.7

The above table shows regarding the site\organ of involvement (37%) in the experimental group had cancer in cervix,(23%)of the subjects had lung cancer, (20%) of the subjects had breast cancer, (13%)of the subjects had cancer in gastro-intestinal

system, and the remaining (7%) of the subjects had cancer in other sites. In the control group majority of the subjects (37%) had cancer in other sites, (17%) had cancer in lung and cervix, (16%) had breast cancer, and the remaining (13%) had cancer in the gastrointestinal system.

Majority of the subjects in the experimental group (53%) had cancer between 1-3 years of duration,(23%) of the subjects had less than 1 year duration,(17%) of the subjects had 3-5 years of duration, and the remaining (7%) of the subjects had above 5 years of duration. In the control group (50%) of the subjects had less than 1 year of duration,(23%) of the subjects had 3-5 years of duration,(14%) of the subjects had 1-3 years of duration, and the remaining(13%) of the subjects had above 5 years of duration.

Majority of the study participants in the experimental group (43%) believed cancer is curable, (27%) of the subjects had no curable opinion about cancer,(17%) of the subjects had somewhat curable opinion about cancer, and the remaining (3%) of the subjects answered I don't know. In the control group (63%) of the subjects believed cancer is curable,(17%) of the subjects had somewhat curable and not curable opinion, and the remaining (13%) answered I don't know.

Majority of the subjects in the experimental group (30%) had undergone 3rd, 4th, and more than 4 cycles of chemotherapy and the remaining (10%) of the subjects had undergone 2nd cycle of chemotherapy. In the control group (27%) of the subjects had undergone 4th and more than 4 cycles of chemotherapy (26%) of the subjects had undergone 2nd cycle of chemotherapy, and (20%) of the client had undergone 3rd cycle of chemotherapy.

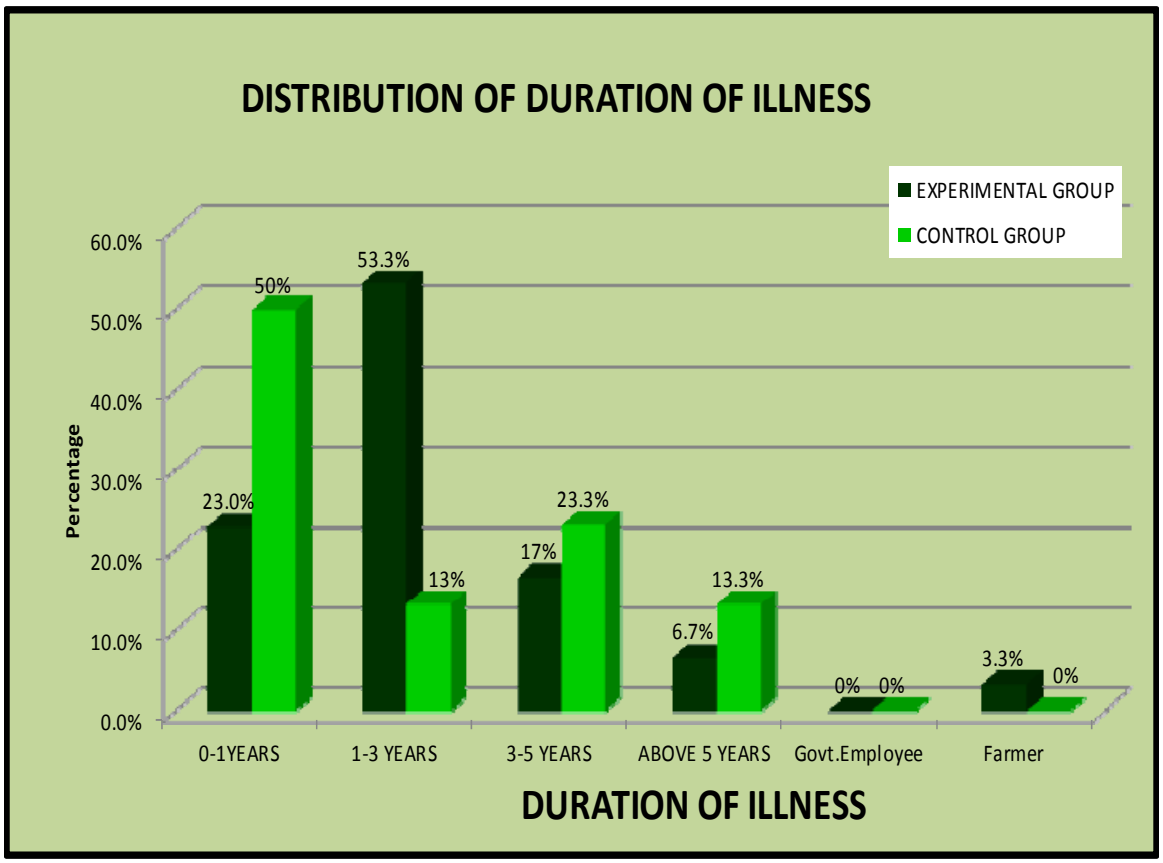


FIGURE 8 : PERCENTAGE DISTRIBUTION OF SUBJECTS ACCORDING TO THE DURATION OF ILLNESS IN BOTH EXPERIMENTAL AND CONTROL GROUP

The above clustered bar diagram reveals the majority of the participants in experimental group (53.3%) group had cancer about less than a year of duration, (50%) of participants in control group had less than 1 year of duration.

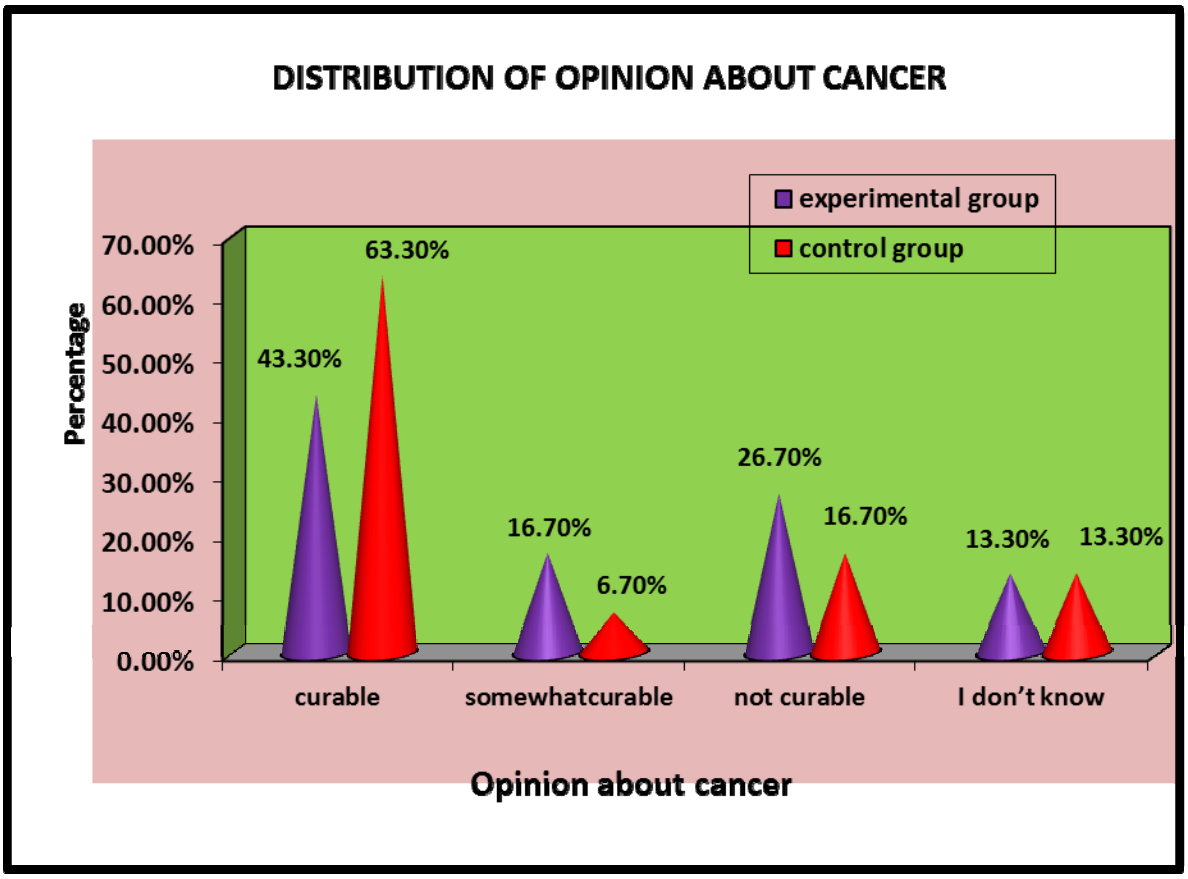


FIGURE 9 : PERCENTAGE DISTRIBUTION OF SUBJECTS ACCORDING TO THE OPINION ABOUT CANCER IN BOTH EXPERIMENTAL AND CONTROL GROUP

The above cone diagram reveals the majority of the participants in the experimental group (43.3%) and (63.3%) in the control group had opinion that cancer is curable.

SECTION: III

DESCRIBES THE EFFECTIVENESS OF BACK MASSAGE ON FATIGUE AND ANXIETY

TABLE 3 FREQUENCY AND PERCENTAGE DISTRIBUTION LEVEL OF FATIGUE

Level of fatigue	Experimental Group				Control group			
	Pre test		Post test		Pre test		Post test	
	f	%	f	%	f	%	f	%
Mild	2	6.7	27	90	2	6.7	2	6.7
Moderate	15	50	3	10	14	46.7	13	43.3
Severe	13	43.3	-	-	14	46.7	15	50

The above table shows the frequency and percentage distribution level of chemotherapy related fatigue among patients receiving chemotherapy in medical oncology ward. In experimental group before intervention (6.7%) had mild level of fatigue, (50%) had moderate level of fatigue and (43.3%) had severe level of fatigue. In the post test (90%) had mild level of fatigue and (10%) had moderate level of fatigue. No one had severe level of fatigue. Similarly in the control group during the pretest (6.7%) had mild level of fatigue, (46.7%) had moderate level and (46.7%) had severe level of fatigue. In the post test (6.7%) had mild level of fatigue, (43.3%) had moderate level of fatigue and (50%) had severe level of fatigue.

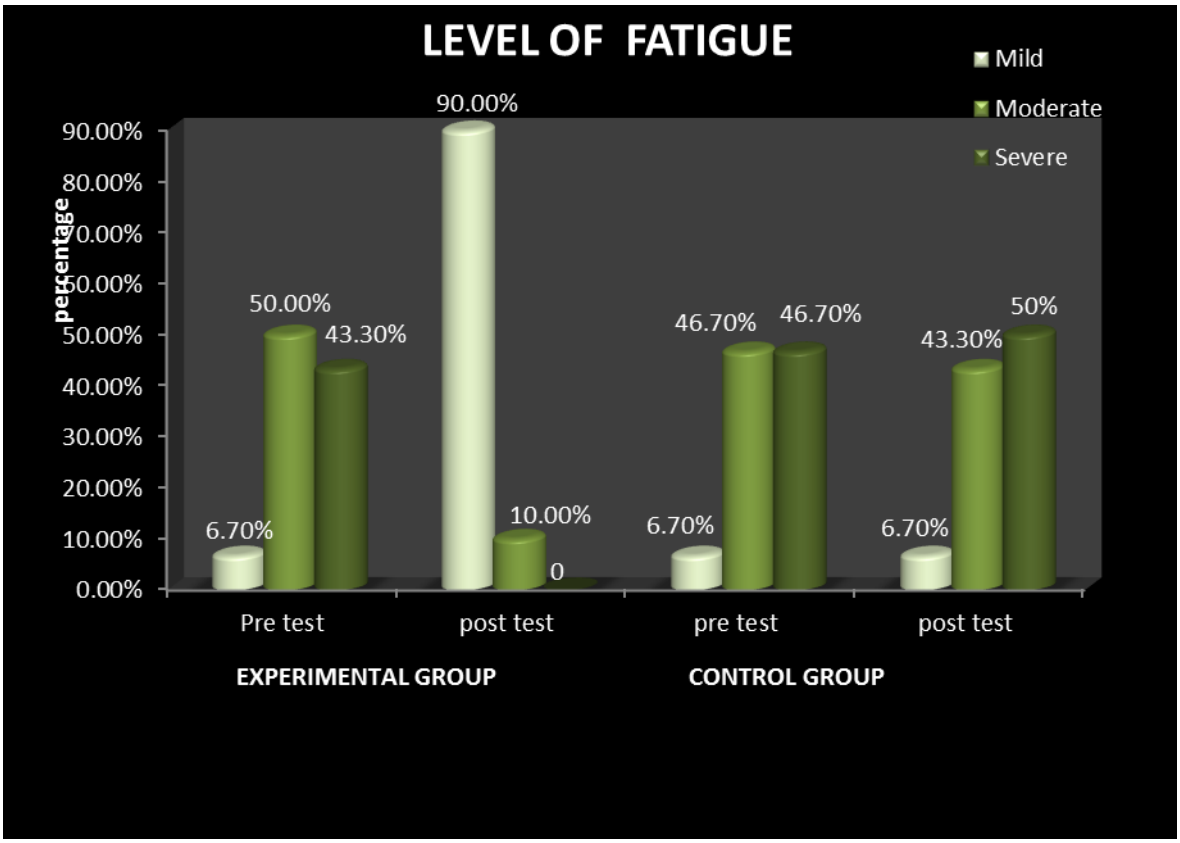


FIGURE 10 : PERCENTAGE DISTRIBUTIONS OF SUBJECTS ACCORDING TO PRE TEST AND POST TEST LEVEL OF FATIGUE IN EXPERIMENTAL AND CONTROL GROUP.

The above clustered cylindrical diagram shows that in experimental group before intervention (6.7%) had mild level of fatigue, (50%) had moderate level of fatigue, and (43.3%) had severe level of fatigue. In post test (90%) had mild level of fatigue, (10%) of moderate level of fatigue and no one had severe level of fatigue. Similarly in control group during pretest (6.7%) had mild level, (46.7%) had moderate level, and (46.7%) had severe level of fatigue. In post test (6.7%) had mild level,(43.3%)had moderate level and (50%) had severe level of fatigue

TABLE 4 : FREQUENCY AND PERCENTAGE DISTRIBUTION LEVEL OF ANXIETY

Level of anxiety	Experimental Group				Control group			
	Pre test		Post test		Pre test		Post test	
	f	%	f	%	f	%	f	%
Mild	12	40	29	96.7	11	36.7	11	36.7
Moderate	16	53.3	1	3.3	17	56.6	17	56.7
Severe	2	6.7	-	-	2	6.7	2	6.7

The above table shows the frequency and percentage distribution level of chemotherapy related anxiety among patients receiving chemotherapy in medical oncology ward. In experimental group during the pretest (40%) had mild anxiety and (53.3%) had moderate level of anxiety and (6.7%) had severe level of anxiety. In post test (96.7%) of the subjects had mild level of anxiety (3.3%) had moderate level of anxiety and no one had severe level. In control group (36.7%) had mild level of anxiety,(56.6%) had moderate level of anxiety and (6.7%)had severe level of anxiety. In post test the anxiety level remained the same.

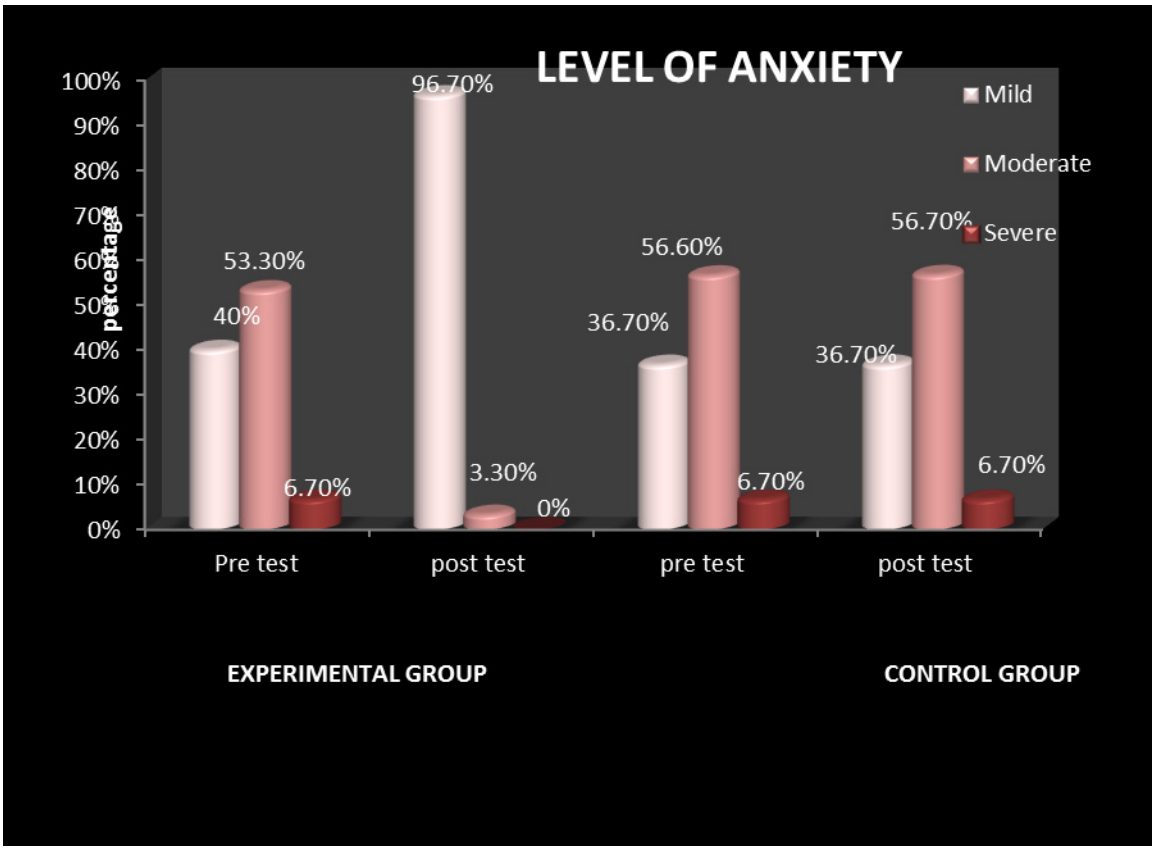


FIGURE 11 : PERCENTAGE DISTRIBUTIONS OF SUBJECTS ACCORDING TO PRE TEST AND POST TEST LEVEL OF ANXIETY IN EXPERIMENTAL AND CONTROL GROUP

The above clustered cylindrical diagram reveals that during pretest (6.7%) in experimental and (13.3%) in control had mild level of anxiety. (56.7%), (70%) in experimental and control group had moderate level of anxiety, (3.7%) in experimental and (16.7%) in control group had severe level of anxiety. In post test (96.7%) from experiment and (36.7%) from control group showed mild level of anxiety, (3.3%), (56.7%) from experimental and control group showed moderate level and the remaining (6.7%) in control group showed severe level of anxiety.

Table 5 : MEAN STANDARD DEVIATION AND MEAN PERCENTAGE OF BACK MASSAGE ON FATIGUE AND ANXIETY IN EXPERIMENTAL GROUP

VARIABLES	Experimental –pre test scores			Experimental –post scores			Difference in mean %
	Mean	SD	Mean%	Mean	SD	Mean%	
Fatigue	4.15	1.61	42	2.41	1.03	24	18
Anxiety	41.1	11.74	52	30.7	4.56	38	14

The above table shows mean standard deviation and mean percentage of back massage on chemotherapy related fatigue and anxiety among patients receiving chemotherapy in medical oncology ward in experimental group. The post test score fatigues mean (2.41) and anxiety mean (30.7) is lesser than the pretest score fatigue (4.15) and anxiety (41.1) mean. The difference in mean percentage on fatigue is 18 and difference in the mean percentage of anxiety is 14.

TABLE 6 : MEAN STANDARD DEVIATION AND MEAN PERCENTAGE OF BACK MASSAGE ON FATIGUE AND ANXIETY IN CONTROL GROUP

Variables	Control group			Control group			Difference in mean %
	pre test scores			Post test scores			
	Mean	SD	Mean%	Mean	SD	Mean%	
Fatigue	4.05	1.68	41	4.04	1.67	40	1
Anxiety	41.17	11.57	52	41.27	11.57	52	0

The above table shows mean standard deviation and mean percentage of back massage on chemotherapy related fatigue and anxiety among patients receiving chemotherapy in medical oncology ward in control group. The difference in mean percentage on fatigue and anxiety is 1 and 0 respectively.

TABLE 7 : 't' TEST TO ASSESS THE EFFECTIVENESS OF BACK MASSAGE ON FATIGUE AMONG EXPERIMENTAL AND CONTROL GROUP

Group	Pretest		Post test		t and p value	
	Mean	**SD**	**Mean**	**SD**	**t test**	**p-value**
Experimental group	4.15	1.61	2.41	1.03	**5.21**	**0.000*** **
Control group	4.05	1.69	4.04	1.67	**0.645**	**0.525**
t-test value	**0.234**		**4.52**			
p-value	**0.815**		**0.000*** **			

(*-P<0.05, significant and **-P<0.01 & *-P<0.001, highly significant)**

The above table shows the effectiveness of back massage on chemotherapy related fatigue in experimental and control group. The obtained t-value in post test is 4.52 at p value 0.000 level of significance. This shows that back massage is effective in reducing chemotherapy related fatigue among patients receiving chemotherapy. The t value obtained between experimental pretest and post test is 5.21 at p-value of 0.000 level of significance.

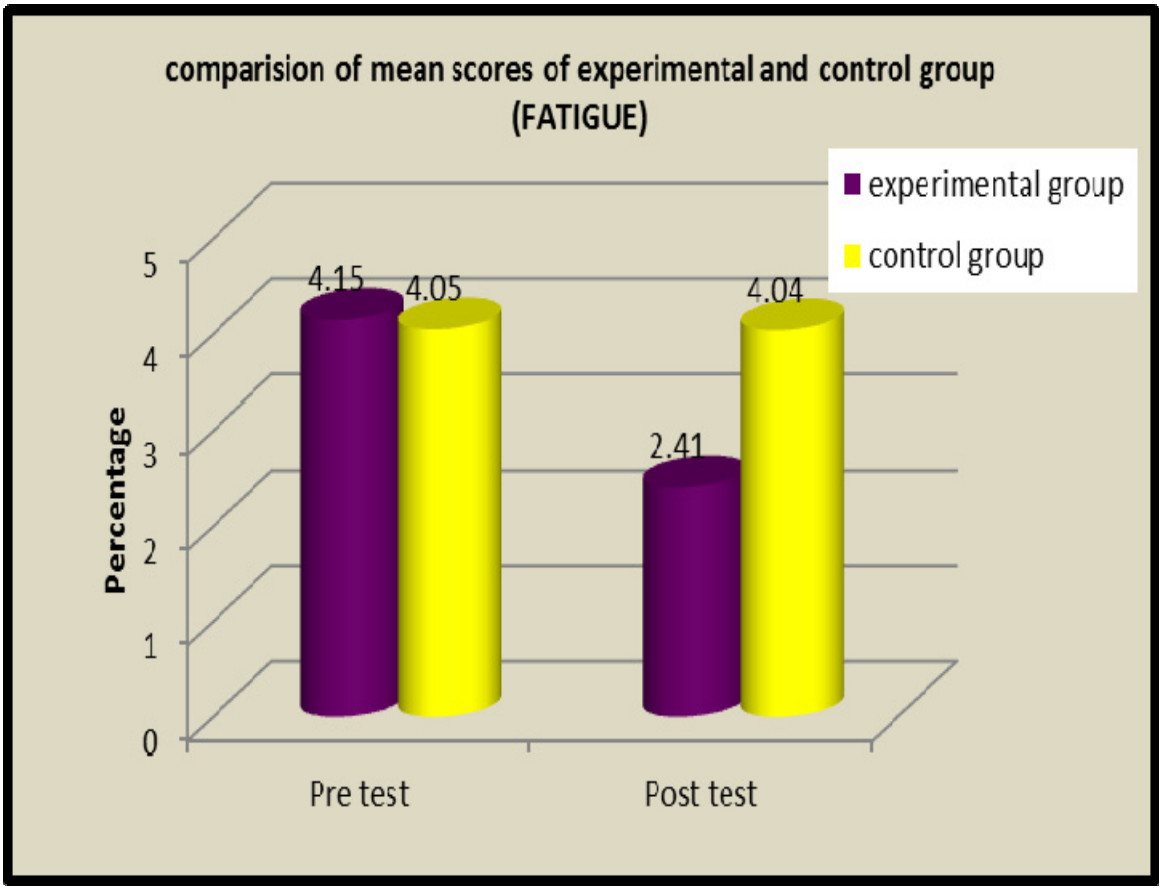


FIGURE 12 : COMPARISON OF MEAN VALUES OF FATIGUE IN EXPERIMENTAL AND CONTROL GROUP

The above cylindrical diagram reveals that the mean value in experimental pretest (4.15) has been reduced to (2.41) in post test.

TABLE 8 : "t" TEST TO ASSESS THE EFFECTIVENESS OF BACK MASSAGE ON ANXIETY AMONG EXPERIMENTAL AND CONTROL GROUP

Group	Pretest		Post test		t and p value	
	Mean	**SD**	**Mean**	**SD**		
Experimental group	41.1	11.74	30.7	4.56	**t-4.72**	**p-value 0.000*** **
Control group	41.17	11.57	41.27	11.57	**t-1.79**	**p-value 0.083**
t-test value	**0.22**		**4.65**			
p-value	**0.982**		**0.000*** **			

The above table shows the effectiveness of back massage on chemotherapy related anxiety in experimental group. The obtained t-value in pretest test and post test between experimental group is 4.72 at p value 0.000 level of significance. This shows that back massage is effective in reducing chemotherapy related anxiety among patients receiving chemotherapy. The t- value obtained between experimental and control post test is 4.65 at p-value of 0.000 level of significance.

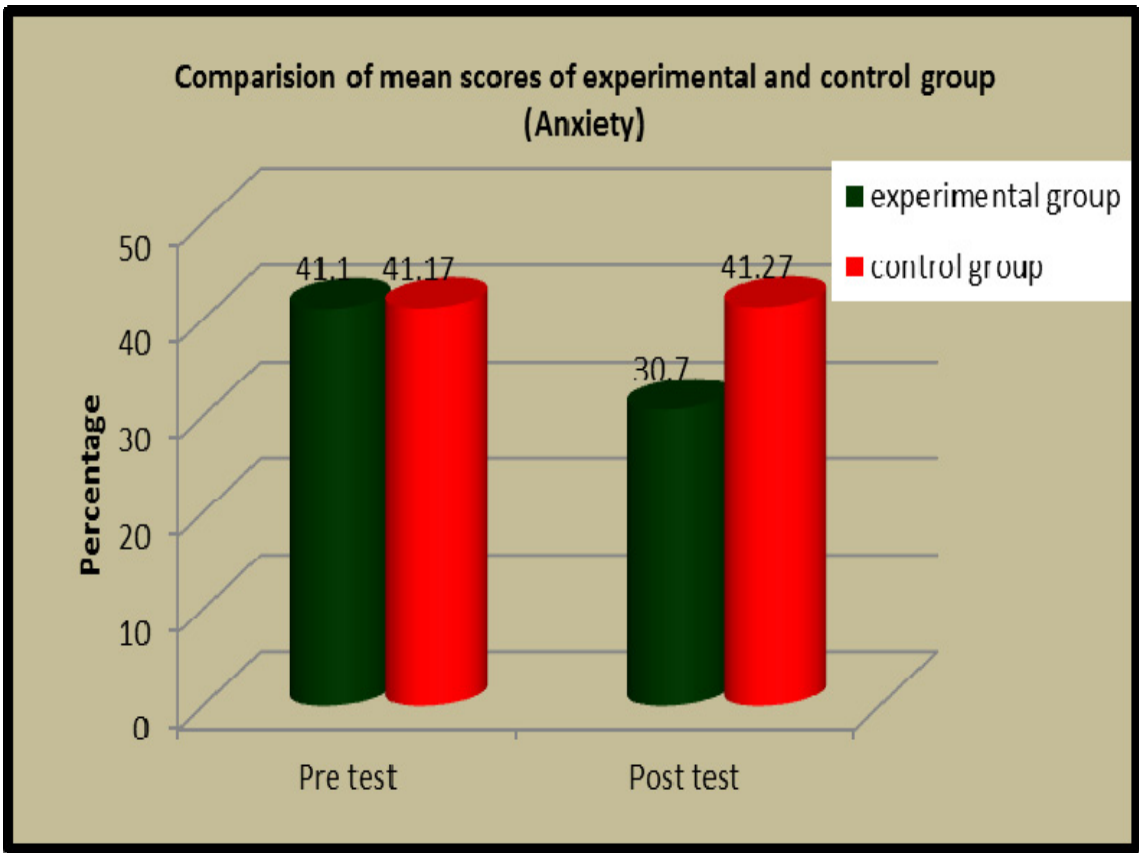


FIGURE 13 : COMPARISON OF MEAN VALUES OF ANXIETY IN EXPERIMENTAL AND CONTROL GROUP

The above cylindrical diagram reveals that the mean value in experimental pretest (41.1) has been reduced to (30.7) in post test.

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SECTION: IV

DESCRIBE THE ASSOCIATION OF POST TEST LEVEL OF FATIGUE AND ANXIETY WITH SELECTED DEMOGRAPHIC AND CLINICAL VARIABLES IN EXPERIMENTAL GROUP.

TABLE 9 : ASSOCIATION OF POST TEST LEVEL OF FATIGUE ON BACK MASSAGE IN EXPERIMENTAL GROUP WITH SELECTED DEMOGRAPHIC AND CLINICAL VARIABLES

Demographic variables	Mild		Moderate		Severe		X^2-value	p-value
	f	%	f	%	f	%		
Age in years:								
20-30 yrs	3	10	0	0	-	-		
31-40 yrs	6	20	0	0	-	-	3.07	0.38
41-50 yrs	12	40	1	3.3	-	-	(df=3)	
51-60 yrs	6	20	2	6.7	-	-		
Sex:								
Male	14	46.7	1	3.3	-	-	0.37	0.543
Female	13	43.3	2	6.7	-	-	(df=1)	
Educational status:								
No formal education	9	30	0	0	-	-		
Primary education	8	26.7	2	6.7	-	-	3.33	0.343
High school	6	20	0	0	-	-	(df=3)	
Graduate	4	13.3	1	3.3	-	-		
Occupation:								
Agriculture	13	43.3	0	0	-	-		
Self employment	6	20	2	6.7	-	-	3.61	0.307
Unemployed	7	23.3	1	3.3	-	-	(df=3)	
Govt.employee	1	3.3	0	0	-	-		
Family monthly income:								
3000-4000	20	66.7	0	0	-	-		
4000-5000	3	10	2	6.7	-	-	7.97	**0.019***
5000-6000	3	10	1	3.3	-	-	(df=2)	
Above 6000	0	0	0	0	-	-		
Marital status:								
Married	24	80	3	10	-	-		
Unmarried	2	6.7	0	0	-	-	0.37	0.831
Divorced	1	3.3	0	0	-	-	(df=2)	
Separated	0		0					

Residence:								
Rural	16	53.3	1	3.3	-	-		
Urban	9	30	1	3.3	-	-	2.14	0.344
Semi urban	2	6.7	1	3.3	-	-	(df=2)	
Activity:								
Sedentary	6	20	0	0	-	-	1.67	0.435
Moderate	18	60	2	6.7	-	-	(df=2)	
Heavy	3	10	1	3.3	-	-		
Social support:								
Parents	3	10	1	3.3	-	-		
Husband/spouse	19	63.3	2	6.7	-	-	1.56	0.668
Children	1	3.3	0	0	-	-	(df=3)	
Friends/relatives	4	13.3	0	0	-	-		
CLINICAL VARIABLE								
Site/organ-part involved:								
Cancer breast	4	13.3	2	6.7	-	-		
Cancer lung	7	23.3	0	0	-	-		
Cancer stomach/colon/oesophagus	3	10	1	3.3	-	-	6.85	0.144
Cancer cervix	11	36.7	0	0	-	-	(df=4)	
Others	2	6.7	0	0	-	-		
Duration of illness:								
0-1 years	7	23.3	0	0	-	-		
1-3 years	15	50	1	3.3	-	-	5.14	0.162
3-5 years	4	13.3	1	3.3	-	-	(df=3)	
Above 5 years	1	3.3	1	3.3	-	-		
Opinion about cancer:								
Curable	13	43.3	0	0	-	-		
Somewhat curable	5	16.7	0	0	-	-	9.17	**0.027***
Not curable	5	16.7	3	10	-	-	(df=3)	
I don't know	4	13.3	0	0	-	-		
Number of chemotherapy cycles :								
2nd cycle	3	10	0	0	-	-		
3rd cycle	9	30	0	0	-	-	2.83	0.417
4th cycle	8	26.7	1	3.3	-	-	(df=3)	
More than 4 cycle	7	23.3	2	6.7	-	-		

The above table shows the family monthly income has significant association (chi-square:7.97; p-value: 0.019) of post level of fatigue with selected demographic variable in the experimental group. No other demographic variables have significant association in the post level of fatigue. Opinion about cancer has significant association (chi-square:9.17; p-value0.027) of post test level of fatigue with clinical variables.

TABLE 10 : ASSOCIATION OF POST TEST LEVEL OF ANXIETY ON BACK MASSAGE IN EXPERIMENTAL GROUP WITH SELECTED DEMOGRAPHIC AND CLINICAL VARIABLES

Demographic variables	Mild		Moderate		Severe		X^2-value	p-value
	f	%	f	%	f	%		
1.Age in years:								
20-30 yrs	3	10	0	0	-	-		
31-40 yrs	6	20	0	0	-	-	2.84	0.416
41-50 yrs	13	43.3	0	0	-	-	(df=3)	
51-60 yrs	7	23.3	1	3.3	-	-		
2.Sex:								
Male	15	50	0	0	-	-	1.03	0.309
Female	14	46.7	1	3.3	-	-	(df=1)	
3.Educational status:								
No formal education	8	26.7	1	3.3	-	-		
Primary education	10	33.3	0	0	-	-	2.41	0.491
High school	6	20	0	0	-	-	(df=3)	
Graduate	5	16.7	0	0	-	-		
4.Occupation:								
Agriculture	12	40	1	3.3	-	-		
Self employment	8	26.7	0	0	-	-	1.35	0.717
Unemployed	8	26.7	0	0	-	-	(df=3)	
Govt.employee	1	3.3	0	0	-	-		
5.Family monthly income:								
3000-4000	19	63.3	1	3.3	-	-		
4000-5000	5	16.7	0	0	-	-	0.47	0.792
5000-6000	4	13.3	0	0	-	-	(df=2)	
Above 6000	0	0	0	0	-	-		
6.Religion:								
Hindu	19	63.3	0	0	-	-	3.39	0.183
Christian	6	20	1	3.3	-	-	(df=2)	
Muslim	4	13.3	0	0	-	-		
Others					-	-		
7.Marital status:								
Married	27	90	0	0	-	-		
Unmarried	2	6.7	0	0	-	-	30	**0.000*** **
Divorced	0	0	0	0	-	-	(df=2)	
Separated	0	0	1	3.3				

8.Residence:								
Rural	17	56.7	0	0	-	-		
Urban	10	33.3	0	0	-	-	9.31	**0.010****
Semi urban	2	6.7	1	3.3	-	-	(df=2)	
9.Activity:								
Sedentary	6	20	0	0	-	-		
Moderate	19	63.3	1	3.3	-	-	0.517	0.772
Heavy	4	13.3	0	0	-	-	(df=2)	
10.Social support:								
Parents	4	13.3	0	0	-	-		
Husband/spouse	21	70	0	0	-	-	6.72	0.081
Children	1	3.3	0	0	-	-	(df=3)	
Friends/relatives	3	10	1	3.3	-	-		
Clinical variables								
11.Site/organ-part involved:								
Cancer breast	6	20	0	0	-	-		
Cancer lung	7	23.3	0	0	-	-	6.72	0.151
Cancer stomach/colon/esophagus	3	10	1	3.3	-	-	(df=4)	
Cancer cervix	11	36.7	0	0	-	-		
Others	2	6.7	0	0	-	-		
12.Duration of illness:								
0-1 years	7	23.3	0	0	-	-		
1-3 years	15	50	1	3.3	-	-	0.905	0.824
3-5 years	5	16.7	0	0	-	-	(df=3)	
Above 5 years	2	6.7	0	0	-	-		
13.Opinion about cancer:								
Curable	13	43.3	0	0	-	-		
Somewhat curable	5	16.7	0	0	-	-	6.72	0.081
Not curable	8	26.7	0	0	-	-	(df=3)	
I don't know	3	10	1	3.3	-	-		
14.Number of chemotherapy cycles :								
2nd cycle	3	10	0	0	-	-		
3rd cycle	8	26.7	1	3.3	-	-	2.41	0.491
4th cycle	9	30	0	0	-	-	(df=3)	
More than cycle	9	30	0	0	-	-		

(*-P<0.05, significant and **-P<0.01 & *-P<0.001, highly significant, df = degrees of freedom)**

The above table shows the marital status has significant association (chi-square:30; p-value: 0.000) of post level of anxiety with selected demographic variable in the experimental group. Residence has significant association (chi-square:9.31; p-value: 0.010) of post level of anxiety with selected demographic variable. No other clinical variables have significant association in the post level of anxiety.

SECTION: V

CORRELATION OF FATIGUE AND ANXIETY ON BACK MASSAGE IN EXPERIMENTAL GROUP

TABLE 11 : CORRELATION BETWEEN LEVELS OF FATIGUE AND ANXIETY IN EXPERIMENTAL GROUP

Variables	'r'-value	p-value
Pre test (fatigue and anxiety)	0.152	0.397
Post test (fatigue and anxiety)	0.708	**0.000*** **

When pretest fatigue with pretest anxiety in the experimental group is correlated it shows there was no significant relationship with fatigue and anxiety (r=0.152).

When correlating the fatigue post test with anxiety post test in the experimental group it shows there was highly significant relationship with fatigue and anxiety (r-0.708).

TABLE 12 : CORRELATION BETWEEN LEVEL OF FATIGUE AND ANXIETY ON BACK MASSAGE AMONG PATIENTS RECEIVING CHEMOTHERAPY IN MEDICAL ONCOLOGY WARD IN CONTROL GROUP

Variables	'r'-value	p-value
Pre test(fatigue and anxiety)	0.216	0.252
Post test (fatigue and anxiety)	0.178	0.346

When pretest fatigue with pretest anxiety in the control group is correlated it shows there was no significant relationship with fatigue and anxiety (r=0.216).

When correlating the fatigue post test with anxiety post test in the control group it shows there was no significant relationship with fatigue and anxiety.(r=0.178).

Discussion

CHAPTER –V

DISCUSSION

"Freedom is incompatible...Truth is strength…free discussion is the very life of truth"

-Thomas Henry

Based on the objectives of the study and hypotheses, this chapter deals with the detailed discussion of the results of the data interpreted from the statistical analysis. The purpose of the study was to evaluate the effectiveness of back massage on fatigue and anxiety among patients receiving chemotherapy in medical oncology ward at government Rajaji hospital, Madurai-20.

Chemotherapy is one of the major treatments for cancer patients to cure or palliate their disease. Cancer patients experience physiological and psychological distress during chemotherapy treatment. Anxiety and fatigue is the most common symptom observed in cancer patients undergoing chemotherapy. Anxiety has also proven to be highly associated with anticipatory nausea and vomiting (ANV). In the local chemotherapy ward, almost half of the cancer patients verbalize that they feel anxious and are afraid of turning up for chemotherapy due to the fear of its side effects.

However, clinical measure for treating patients' anxiety and fatigue during chemotherapy is limited. One of the complementary and alternative medicines (CAM), massage therapy, becomes a useful means for cancer patients to relieve their physical and psychological distress. Yet, massage is not a routine CAM being integrated into the cancer treatment in India, including the target center. It can be incorporated in routine care of patients receiving chemotherapy.

Collaborations among oncology nurses, social workers, can use support groups and workshops to teach family caregivers how to provide the benefits of touch in supportive care at home. These initiatives foster proactive involvement by family members, are cost effective, and help overcome disparities in access to supportive and palliative care, including for underserved or low income populations.

The study was to evaluate the effectiveness of back massage on chemotherapy related fatigue and anxiety among patients receiving chemotherapy in medical oncology ward at Government Rajaji Hospital-Madurai-20.The sample consists of 60 patients receiving chemotherapy (30 in experimental and 30 in control) was selected by consecutive sampling. Pretest was assessed by self administered method framed on base line data and fatigue measured with Brief fatigue inventory and anxiety measured with State trait anxiety scale. Back massage intervention was given. Data analysis and interpretation were done by frequency, percentage, mean, standard deviation, paired, unpaired‘t’ test and correlation coefficient. The results of the study were discussed based on the objectives on following supportive studies.

DISCUSSION OF DEMOGRAPHIC VARIABLES

Among patients receiving chemotherapy in medical oncology ward majority of the study participants in experimental group (43.3%) and in the control group (43.3%) were between 41-50 years. As cancer is considered the disease of the ageing which was supported by The International Agency for Research on Cancer (IARC), WHO's specialized cancer agency, which has released the latest data on cancer incidence, mortality and prevalence worldwide. In western countries cancer occurs at the age between 50-60 years, but in India high risk is between 35-60 years. The male and female of the study participants in experimental group and control

group were equally distributed (50%) were male and (50%) were female. The study illustrated that (33.3%) of clients in experimental group and (36.7%) in control group completed their primary education.

Majority of the clients earned through agriculture both in the experimental group (43.3%) and in control group (33.3%) because the majority of the population is hailed from rural areas in and around Madurai and other southern parts of Tamil nadu. In the earning perspective majority (68.9%) of the subjects in the experimental group and (40%) in the control group earned between Rs.3000-4000/ as they earn their daily wages by working in farm lands. Most of them in both the groups (56.7%) in experimental group and (83.3%) in control group belonged to Hindu religion. Regarding their marital status majority of the study participants in the experimental group (90%) and (73.3%) in the control group were married.

Larger proportion of the subjects in the experimental group (56.7%) and (50%) in the control group hailed from rural area as the hospital is the referral center and second biggest medical college hospital in tamilnadu which has all specialty departments and also covers the cost of chemotherapy in chief ministers insurance scheme. In view of activity majority of the study population (67%) in experimental group and control group were doing moderate level of activity because majority of them are doing farming. Majority of the study participants in the experimental group (70%) and (60%) in control group received support from their spouse because majority of the participants are married.

DISCUSSION OF CLINICAL VARIABLES

Regarding the site of cancer majority of the subjects (36.7%) in the experimental group had cervical cancer, (23.3%) had cancer in the lungs, (20%) had

cancer breast, (13.3%) had cancer in gastro intestinal system and (6.7%) had other type of cancer. In control group majority of the participants (36.7%) had cancer in other areas, (16.7%) had cancer in breast, lung and cervix. This was supported by the new version of IARC's GLOBOCAN 2012 which provides the most recent estimates for 28 types of cancer in 184 countries and offers a comprehensive overview of the global cancer burden. It reveals striking patterns of cancer in women and highlights that priority should be given to cancer prevention and control measures for breast and cervical cancers globally. The IARC's report categorizes the top five cancers in men are lip/oral cavity, lung, stomach, colo rectum and pharynx, while among women they are breast, cervix, colorectal, ovary and lip/oral cavity. "Cervical and Breast cancer is the leading cause of cancer death in the developing countries of the world," says Dr David Forman, head of the IARC Section of Cancer Information, the group that compiles the global cancer data. "This is partly because a shift in lifestyles is causing an increase in incidence, and partly because clinical advances to combat the disease are not reaching women living in these regions."

Majority of the subjects in the experimental group (53.3%) had cancer between 1-3 years of duration,(23%) of the subjects had less than 1 year duration,(17%) of the subjects had 3-5 years of duration, and the remaining (7%) of the subjects had above 5 years of duration. This was supported by the IARC's prevalence report estimates for 2012 show there were 32.6 million people (over the age of 15 years) alive who had a cancer diagnosed in the previous five years.

In the control group (50%) of the subjects had less than 1 year of duration,(23%) of the subjects had 3-5 years of duration,(14%) of the subjects had 1-3 years of duration, and the remaining(13%) of the subjects had above 5 years of

duration.(43.3%) in the experimental group and (63.3%) in control group believed cancer is curable.(13.3%) in experimental and control group answered I don't know.

Majority of the subjects in the experimental group (30%) had undergone 3rd, 4th, and more than 4 cycles of chemotherapy and the remaining (10%) of the subjects had undergone 2nd cycle of chemotherapy. In the control group (27%) of the subjects had undergone 4th and more than 4 cycles of chemotherapy (26%) of the subjects had undergone 2nd cycle of chemotherapy, and (20%) of the client had undergone 3rd cycle of chemotherapy.

FINDINGS BASED ON THE OBJECTIVES

FIRST OBJECTIVE WAS TO ASSESS THE PRETEST LEVEL OF FATIGUE AND ANXIETY AMONG THE PATIENT RECEIVING CHEMOTHERAPY IN EXPERIMENTAL AND CONTROL GROUP.

The findings revealed that among the total number of 30 subjects, the level of fatigue among patients receiving chemotherapy in experimental group 2 participants (6.7%) had mild level of fatigue,15participants (50%) had moderate level of fatigue, and 13 participants (43.3%) had severe level of fatigue. Similarly in the control group out of 30 participants, 2 participants (6.7%) had mild level of fatigue, 14 participants (46.7%) had moderate level of fatigue, 14participants (46.7%) had severe level of fatigue.

The level of anxiety among patients receiving chemotherapy in the medical oncology ward in the experimental group, 12 participants (40%) had mild level of anxiety, 16 participants (53.3%) had moderate level of anxiety and 2 participants (6.7%) had severe level of anxiety. Similarly in the control group11 participants

(36.7%) had mild level of anxiety, 17 participants (56.6%) had moderate level of anxiety and 2 participants (6.7%) had severe level of anxiety.

The present study was consistent with the study conducted by **Guru Karthikeyan, Divita jumnani and Rama prabhu (2013)** to find out the prevalence of rate of fatigue in cancer patient receiving various anti cancer therapies, and to find out the relative impact of fatigue on quality of life among cancer patients with the age group above 15 years. All the patients were assessed for severity of fatigue using Brief fatigue inventory and for quality of life using FACT G scale. The results showed that the severe fatigue was more prevalent in chemotherapy (58\59, 98.30%) and con current chemo radiation (33\42, 78.57%) as compared to radiotherapy. Moderate correlations were exhibited between fatigue due to radiotherapy and quality of life ($r=0.71$, $p<0.01$), weak correlation was found between fatigue due to chemotherapy and concurrent chemotherapy.

The present study was also consistent with the study conducted by **Manoj Pandey and colleagues (2011**) to evaluate Distress, anxiety, and depression in cancer patients undergoing chemotherapy. A total of 117 patients were evaluated by using distress inventory for cancer (DIC2) and hospital anxiety and depression scale (HADS). Majority of the patients were taking chemotherapy for solid tumors (52; 44.4%).The mean distress score was 24, 18 (15.38%) were found to have anxiety while 19 (16.23%) had depression. High social status was the only factor found to influence distress while female gender was the only factor found to influence depression in the present study. The study highlights high psychological morbidity of cancer patients and influence of gender on depression. Construct of distress as evaluated by DIC 2 may have a possible overlap with anxiety.

THE SECOND OBJECTIVE WAS TO ASSESS THE EFFECTIVENESS OF BACK MASSAGE ON FATIGUE AND ANXIETY AMONG PATIENT RECEIVING CHEMOTHERAPY IN EXPERIMENTAL GROUP.

In experimental group when considering the level of the mean pre-test score of chemotherapy related fatigue it is reduced from 4.15 to 2.41 in the post test, and the difference in the mean percentage of fatigue is 18.The obtained't' value in the experimental group is 5.21 at p value 0.000 level of significance. This shows that back massage is effective in reducing chemotherapy related fatigue among patients receiving chemotherapy in medical oncology ward.

With regard to chemotherapy related anxiety in the experimental group, the mean pre test score is reduced from 41.1in pretest to 30.7 in the post test and the difference in mean percentage is 14.The obtained' value in experimental group is 4.72 at p value 0.000 level of significance. This shows that back massage is effective in reducing chemotherapy related anxiety among patients receiving chemotherapy in medical oncology ward.

The above results showed that there was a statistically significant reduction between the pretest and post test score of chemotherapy related fatigue and anxiety among clients in experimental group. Thus the **H_1: There is a significant difference between the pretest and post test level of fatigue and anxiety among patients receiving chemotherapy in experimental group.- was accepted**

The study findings was also consistent with the study conducted by **Taylor etal (2014)** to find the feasibility of a novel massage intervention delivered over the continuum of care, as well as assessment of the immediate and cumulative effects of massage, in patients with acute myelogenous leukemia. A randomized study was conducted with two groups: a usual care alone control group and a massage therapy intervention plus usual care group. Significant improvements in levels of stress and

health-related quality of life were observed in the massage therapy group versus the usual care alone group, after adjusting for anxiety level, including both immediate and cumulative effects of massage.

Testing statistical significance was not the primary aim of this feasibility study; however, results were examined for significance and trends. When treated as a dependent variable, state anxiety did not change significantly over time, nor did the groups differ over time. In the unconditioned model of stress there was not a significant difference between the groups over time ($p = 0.135$).

However, after controlling for state anxiety over time, a significant difference between the groups ($p = 0.041$) was found: the MT group had a statistically significant decrease in stress over time compared to the UC group, whose slope did not change.

The study finding was also consistent with the study conducted by **Karagozoglu S, Kahve E. (2013)** to determine the efficacy of back massage, a nursing intervention in Turkey, on the process of acute fatigue developing due to chemotherapy and on the anxiety level emerging in cancer patients receiving chemotherapy. The study was conducted on 40 patients. In their study, it was determined that mean anxiety scores decreased in the intervention group patients after chemotherapy. The level of fatigue in the intervention group decreased statistically significantly on the next day after chemotherapy ($p=.020$; effect size=0.84). At the same time, the mean anxiety scores of the patients in the intervention group decreased right after the massage provided during chemotherapy ($p=.109$; effect size=0.37) and after chemotherapy**.**

The study finding was also consistent with the study conducted by **Hodgson NA, Lafferty D. (2012)** to compare the effects of reflexology and Swedish massage therapy on physiologic stress, pain, and mood in older cancer survivors residing in

nursing homes. An experimental, repeated-measures, crossover design study of 18 nursing home residents aged 75 or over and diagnosed with solid tumor in the past 5 years and following completion of cancer treatments. The intervention tested was 20 minutes of Swedish Massage Therapy to the lower extremities, versus 20 minute Reflexology, using highly specified protocols. Pre- and post-intervention levels of salivary cortisol, observed affect, and pain were compared in the Swedish Massage Therapy and Reflexology conditions. Both Reflexology and Swedish massage resulted in significant declines in salivary cortisol and pain and improvements in mood. Preliminary data suggest that studies of Swedish Massage Therapy and Reflexology are feasible in this population of cancer survivors typically excluded from trials. Both interventions were well tolerated and produced measurable improvements in outcomes.

THE THIRD OBJECTIVE WAS TO ASSOCIATE THE LEVEL OF FATIGUE AND ANXIETY AMONG PATIENTS RECEIVING CHEMOTHERAPY WITH SELECTED DEMOGRAPHIC AND CLINICAL VARIABLES IN EXPERIMENTAL GROUP.

A significant association was noted between the family monthly income and level of fatigue among clients belonged to post test experimental group. The statistical significance was found using chi-square test (X2 = 7.97; p =0.019).a significant association was also noted between the opinion about cancer and level of fatigue with clinical variable among clients belonged to post test experimental group, with a statistical significance of(X2 =9.17; p=0.027).

A highly significant association was noted between marital status, residence and level of anxiety among clients belonged to post test experimental group. The statistical significance was found using chi-square test (X^2 =30; p=0.000), (X^2 =9.31; P=0.010) respectively. Thus the **H_2: There is a significant association in the level of**

fatigue and anxiety among patients receiving chemotherapy with the selected demographic and clinical variables in experimental group-was accepted.

THE FOURTH OBJECTIVE WAS TO ASSESS THE CO-RELATION BETWEEN CHEMOTHERAPY RELATED FATIGUE AND ANXIETY LEVEL.

A highly significant positive correlation had been found between chemotherapy related fatigue and anxiety in the experimental group (r=0.708).how ever there was no significant correlation had been found between the fatigue and anxiety in the control group (r=0.178).

Thus H_3: There is a significant correlation between fatigue and anxiety among patients receiving chemotherapy in experimental group-was accepted.

This study was also consistent with the study conducted by **David H. Henry, Hema N. Viswanathan (2006)** to assess the prevalence of fatigue in patients with cancer and to examine relationships between fatigue, anxiety, depression, and somatization. A cross-sectional survey was conducted from April–May 2006. From a chronic illness panel of 550,233 patients, a random sample was selected for an online survey; a sample of patients also was surveyed via telephone from two lists, totaling 177,800 patients. Worse fatigue levels measured by the FACT–F were significantly (all P values < 0.001) associated with higher levels of anxiety, depression, somatization, and the global symptom severity. Scores from the brief fatigue questionnaire were consistent with those obtained with the FACT–F. Finally, they concluded lower fatigue was associated with better health status (P < 0.0001) and Fatigue was significantly associated with anxiety and depression.

Summary, Conclusion, Implications and Recommendations

CHAPTER-VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

"Reasoning draws a conclusion, but does not make the conclusion certain, unless the mind discovers it by the path of experience"

- Roger bacon

This chapter deals with the summary of the study and conclusions drawn. It also clarifies the limitations of the study, the implications for different areas like nursing education, administration, nursing practice, nursing research and recommendations.

6.1 SUMMARY

The present study was aimed at evaluating the effectiveness of back massage on fatigue and anxiety among patients receiving chemotherapy in medical oncology ward.

The objectives of the study were

1. To assess the pretest level of fatigue and anxiety among the patient receiving chemotherapy in experimental and control group.
2. To assess the effectiveness of back massage on fatigue and anxiety among patient receiving chemotherapy in experimental group.
3. To associate the level of fatigue and anxiety among patients receiving chemotherapy with selected demographic and clinical variables in experimental group.
4. To co-relation between fatigue and anxiety in both groups.

The following hypotheses were tested:

H_1 - There is a significant difference between the pretest and post test level of fatigue and anxiety among patients receiving chemotherapy in experimental group.

H_2 - There is a significant association in the level of fatigue and anxiety among patients receiving chemotherapy with the selected demographic and clinical variables in experimental group.

H_3 - There is a significant correlation between fatigue and anxiety among patients receiving chemotherapy in both groups.

The conceptual frame work for this study was based on Martha Rogers's science of unitary human being theory.Quasi experimental research design was used in this study. The independent variable was back massage and dependent variables were chemotherapy related fatigue and anxiety. This study was conducted at the Medical oncology ward at Government Rajaji Hospital, Madurai-625020.the accessible population of the study was cancer patients admitted in medical oncology ward at Government Rajaji Hospital, Madurai.

The study subjects were selected using non-probability-consecutive sampling and were assigned to experimental and control group (30 in each group).the data collection tools were

1. Demographic variables
2. Clinical variables
3. Brief Fatigue Inventory (9 items)
4. State trait Anxiety Inventory (20 items)

Content validity was obtained from five experts specialized in medical and surgical nursing and one expert in medical oncology. Pilot study was conducted on

the subjects to find out the feasibility of the study and it did not show any major flaw in the design of the study.

Data collection was carried out for four to six weeks from 12.08.2014 to 15.09.2014.based on the objectives and hypotheses, the data collected were analyzed by using descriptive and inferential statistics.

6.2 MAJOR FINDINGS OF THE STUDY

- Majority of the study participants in experimental group (43%) and control group were between 41-50 years.
- Both male and female clients in experimental and control group are equally distributed (50%).
- Most of them in both groups (56.7%) in experimental group and (83.3%) in control group belonged to Hindu religion.
- The study illustrated that (33%) of clients in experimental group and (37%) of clients in the control group completed their primary education.
- Large proportions of the subjects in the experimental group (43.3%) and control group (33.3%) were farmers.
- Majority of the subjects in the experimental group (68.9%) and control group (40%) earned Rs.3000-4000/month.
- Regarding their marital status majority of the study participants in the experimental group (90%) and control group (73.3%) were married.
- Most of them in experimental group (56.7%) and (50%) in control group hailed from rural.
- Majority of the study participant (70%) from experimental group and (60%) in control group perceived support from their spouse.

- The above table shows regarding the site\organ of involvement (37%) in the experimental group had cancer in cervix, (23%) of the subjects had lung cancer,(20%)of the subjects had breast cancer, (13%)of the subjects had cancer in gastro-intestinal system, and the remaining (7%) of the subjects had cancer in other sites. In the control group majority of the subjects (37%) had cancer in other sites, (17%) had cancer in lung and cervix,(16%) had breast cancer, and the remaining (13%) had cancer in the gastrointestinal system.
- Majority of the subjects in the experimental group (53%) had cancer between 1-3 years of duration,(23%) of the subjects had less than 1 year duration,(17%) of the subjects had 3-5 years of duration, and the remaining (7%) of the subjects had above 5 years of duration. In the control group (50%) of the subjects had less than 1 year of duration,(23%) of the subjects had 3-5 years of duration,(14%) of the subjects had 1-3 years of duration, and the remaining(13%) of the subjects had above 5 years of duration.
- Most of them in experimental group (43.3%) and (63.3%) in control group had curable opinion.
- In experimental group before intervention (6.7%) had mild level of fatigue, (50%) had moderate level of fatigue and (43.3%) had severe level of fatigue. In the post test (90%) had mild level of fatigue and (10%) had moderate level of fatigue. No one had severe level of fatigue. Similarly in the control group during the pretest (6.7%) had mild level of fatigue, (46.7%) had moderate level and (46.7%) had severe level of fatigue. In the

post test (6.7%) had mild level of fatigue, (43.3%) had moderate level of fatigue and (50%) had severe level of fatigue.

- In experimental group during the pretest (40%) had mild anxiety and (53.3%) had moderate level of anxiety and (6.7%) had severe level of anxiety. In post test (96.7%) of the subjects had mild level of anxiety (3.3%) had moderate level of anxiety and no one had severe level. In control group (36.7%) had mild level of anxiety,(56.6%) had moderate level of anxiety and (6.7%)had severe level of anxiety. In post test the anxiety level remained the same.
- The mean pre test score of chemotherapy related fatigue in experimental group is reduced from 4.15 to 2.41 and the difference in the mean percentage of fatigue is 18.the obtained t-value in the experimental group is 5.21 at p-value 0.000 level of significance. This shows that the back massage is effective in reducing chemotherapy related fatigue among patients receiving chemotherapy in medical oncology ward.
- The mean pre test score of chemotherapy related anxiety in experimental group is reduced from 41.1 to 30.7 and the difference in mean percentage is 14.the obtained t-value in experimental group is 4.72 at p-value 0.000 level of significance. This shows that the back massage is effective in reducing chemotherapy related anxiety in patients receiving chemotherapy in medical oncology ward.
- The comparison of post test fatigue and anxiety score between experimental and control group showed that the experimental post test score fatigue mean (2.41) is lesser than the control group fatigue mean

(4.04) and the experimental group post test score anxiety mean (30.7%) is lesser than the control group anxiety mean (41.27%).

- The obtained t-value by using un paired "t" test between experimental and control group fatigue is 4.52 at p-value 0.000 level of significance. Similarly the obtained t-value between experimental and control group anxiety is 4.65 at p-value 0.000 level of significance.
- A significant association was noted between the family monthly income and level of fatigue among clients belonged to post test experimental group. The statistical significance was found using chi-square test (X^2= 7.97: P=0.019).A significant association was also noted between the opinion about cancer and level of fatigue among clients belonged to post test experimental group. The statistical significance was found using chi-square test (X^2=9.17: p-value0.027).
- A highly significant association was noted between the marital status, residence and level of anxiety among clients belonged to post experimental group. The statistical significance was found using chi-square test. (X^2=30; p-value0.000, X2= 9.3;p-value 0.010) respectively.
- A highly significant positive correlation had been found between the chemotherapy related fatigue and anxiety in the experimental group (r-0.708).However, there was no significant correlation had been found between the fatigue and anxiety in the control group(r-0.178).

6.3 CONCLUSION

According to the statistical results of this study, subjects who received 15 minutes of back massage had a statistically significant reduction in the level of

chemotherapy related fatigue and anxiety among the patients receiving chemotherapy admitted in medical oncology ward and those who were not received back massage had experienced no change of fatigue and anxiety. Because back massage was less cost effective, non invasive and highly feasible, the researcher concluded that it can be used as an effective intervention to reduce the chemotherapy related fatigue and anxiety among the patients receiving chemotherapy in medical oncology wards.

We don't have to wait for the science to support what we already know in our hearts: Skilled touch heals. It eases stress and builds an important bridge between people, easing the isolation of some of the hardest human experiences.

6.4 IMPLICATIONS

The investigator had drawn implications from this study for various areas such as nursing practice, nursing education, nursing education, and nursing administration, and nursing research.

The finding of the present study supports that, back massage is safe, effective and no cost almost are not harmful to health. It was proved that alternative management was effective to reduce the level of chemotherapy related fatigue and anxiety among patients receiving chemotherapy at oncology ward.

IMPLICATIONS FOR NURSING PRACTICE

1. Nursing is intimately involved with human care. Back massage is one modality to convey caring; the findings of study have shown that back massage could be included in the total philosophy of care for the people with cancer that focuses on compassionate care.

2. Nurses are responsible in providing care to cancer patients in many settings; it is also feasible to provide back massage across the continuum of outpatient, inpatient and in home settings.
3. Back massage is a modality that is non-invasive, readily learned, cost effective and can provide a non-pharmacological intervention for fatigue and anxiety, so nurses should educate the clients and their care givers about the benefits of back massage.
4. Massage offers a significant potential for benefitting quality of life, the nurses must know to apply it with proper understanding of the adaptations needed to accommodate the needs and vulnerabilities of cancer patients.

IMPLICATIONS FOR NURSING EDUCATION

1. Students are intellectually familiar with diseases and conditions such as cancer, chemotherapy and its side effects but do not receive structured clinical experience with such situations. So as a nurse educator we must enhance the nursing students to acquire knowledge as well as hands on training for reducing fatigue and anxiety.
2. The nursing curriculum is concerned with the preparation of the future nurses. The present study would help the nurses to understand the level of chemotherapy related fatigue and anxiety among her clients and necessity of back massage to reduce fatigue and anxiety.
3. The study will enable the students to compare back massage with other non-pharmacological therapies for reducing side effects of chemotherapy.

4. The procedure which is already present in the nursing foundation can be improved by giving more practical sessions and training the students specially to care cancer patients.

IMPLICATIONS FOR NURSING ADMINISTRATION

1. These findings will help the nurse administrators to encourage the nurses to use back massage for reducing chemotherapy related to fatigue and anxiety.
2. These findings will be very helpful to the administrators for organizing continuing education programme for nurses regarding non pharmacological therapies like back massage.
3. Video assisted teaching programmes can be arranged to motivate the patients care givers, to reduce the side effects of chemotherapy.

IMPLICATIONS FOR NURSING RESEARCH

1. Future studies could test varying length of intervention for optimal effect**.**
2. Research can be done regarding the effectiveness of other techniques of massage therapy.
3. Similar studies can be done by comparing the back massage with other complimentary therapies.
4. Clinical nurses can conduct further studies on back massage on other aspects of chemotherapy related side effects such as pain, nausea, vomiting, sleep pattern etc.
5. Study can be done in different settings.

6. Massage procedure can be done in other parts of the body (legs, shoulder, hands).
7. Study can be done in the specific type of cancer patients.

6.5 RECOMMENDATIONS

Based on the findings of the present study recommendations are offered for further research:

- A true experimental study can be conducted to assess the effectiveness of back massage in reduction of chemotherapy related fatigue and anxiety.
- A study can be conducted using other relaxation techniques like music, guided imagery.
- Study can be conducted in a different setting such as palliative care unit, day care and Home.
- This non-pharmacological intervention warrants further nursing researches especially in vulnerable populations (such as neonates and the frail elderly), for whom invasive therapies are problematic.
- A similar study can be conducted in the patients undergoing radiation therapy.
- The effectiveness of back massage can be tested for other disease conditions.

6.6 LIMITATIONS

- Conducting a quasi-experimental study presents several challenges, for there are numerous factors over which the researcher has to control. All of the facilities used in the present study were considerable for the

practitioner, although an effort was made to maintain consistent facilities and environmental conditions, but some conditions such as room temperature was uncontrollable.

- Some of the clinical procedures such as specimen collection, taking x-rays in the ward disturbed researcher while giving back massage. So those procedures were planned ahead to the intervention.

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Appendices

APPENDIX – I

PERMISSION LETTER TO CONDUCT DISSERTATION STUDY IN GRH MADURAI

From

V.Subashini
M.Sc (N) I year student,
College of Nursing,
Madurai Medical College,
Madurai - 20.

To

The Professor and Head of the Department,
Department of Medical Oncology,
Government Rajaji Hospital,
Madurai - 20.

Through: The proper Channel

Respected Sir,

Sub : College of Nursing, Madurai Medical College, Madurai – M.Sc., (N) I year Medical & Surgical Nursing Student – Permission letter for conducting study in Medical oncology ward at Government Rajaji Hospital – requested – regarding.

As per the curriculum recommended by the Tamilnadu Dr.MGR Medical University I year M.Sc (N) students are required to conduct a dissertation study. I have selected the study topic **"A Study to assess the effectiveness of Back massage on chemotherapy related fatigue and anxiety among patients receiving chemotherapy in oncology wards of Government Rajaji Hospital, Madurai"** for the partial fulfillment of the course. I assure that I will not interfere with the routine activity of the department.

Kindly consider my request and permit me to conduct the study.

Thanking you,

Place: Madurai
Date: 24/12/13

Yours faithfully,
Subashini V.
(V.SUBASHINI)

Forwarded
S.P.
24/12/13

24/12/13
Dr P.M. Nayakkeeran MS
Med. Oncology

APPENDIX – II

ETHICAL COMMITTEE APPROVAL LETTER

Ref. No. 68/E4/2/2014 **Govt. Rajaji Hospital, Madurai.20. Dated: 02.2014**

Institutional Review Board / Independent Ethics Committee.
Captian. Dr. B. Santhakumar, M.D., (F.M.,)
Dean, Madurai Medical College &
Govt Rajaji Hospital, Madurai 625020. **Convenor**

Sub: Establishment-Govt. Rajaji Hospital, Madurai-20-
Ethics committee-Meeting Minutes- for January 2014
Approved list -regarding.

The Ethics Committee meeting of the Govt. Rajaji Hospital, Madurai was held on 20.1.2014, Monday at 10.00 am to 12.00.noon at the Anaesthesia Seminar Hall, Govt. Rajaji Hospital, Madurai. The following members of the committee have attended the meeting.

1.Dr. V. Nagarajan, M.D., D.M (Neuro) Ph: 0452-2629629 Cell.No 9843052029	Professor of Neurology (Retired) D.No.72, Vakkil New Street, Simmakkal, Madurai -1	Chairman
2. Dr.Mohan Prasad , M.S M.Ch Cell.No.9843050822 (Oncology)	Professor & H.O.D of Surgical Oncology(Retired) D.No.72, West Avani Moola Street, Madurai -1	Member Secretary
3. Dr. Parameswari M.D (Pharmacology) Cell.No.9994026056	Director of Pharmacology Madurai Medical College	Member
4. Dr.S. Vadivel Murugan, MD., (Gen.Medicine) Cell.No 9566543048	Professor of Medicine Madurai Medical College	Member
5. Dr.S. Meenakshi Sundaram, MS (Gen.Surgery) Cell.No 9842138031	Professor & H.O.D of Surgery Madurai Medical College	Member
6. Mrs. Mercy Immaculate Rubalatha, M.A., Med., Cell. No. 9367792650	50/5, Corporation Officer's quarters, Gandhi Museum Road, Thamukam, Madurai-20	Member
7. Thiru.Pala. Ramasamy , BA.,B.L., Cell.No 9842165127	Advocate, D.No.72.Palam Station Road, Sellur, Madurai -2	Member
8. Thiru. P.K.M. Chelliah ,B.A Cell.No 9894349599	Businessman, 21 Jawahar Street, Gandhi Nagar, Madurai-20	Member

The following Project was approved by the committee

..2..

Name of P.G.	Course	Name of the Project	Remarks
V. Subashini	M.Sc. Nursing, College of Nursing, Madurai Medical College, Madurai	A study to assess the effectiveness of back massage on fatigue and anxiety among patients receiving chemotheraphy in Medical Oncology ward at Govt. Rajaji Hospital. Madurai.	Approved

Please note that the investigator should adhere the following: She/He should get a detailed informed consent from the patients/participants and maintain it Confidentially.

1. She/He should carry out the work without detrimental to regular activities as well as without extra expenditure to the institution or to Government.
2. She/He should inform the institution Ethical Committee, in case of any change of study procedure, site and investigation or guide.
3. She/He should not deviate the area of the work for which applied for Ethical clearance. She/He should inform the IEC immediately, in case of any adverse events or Serious adverse reactions.
4. She/He should abide to the rules and regulations of the institution.
5. She/He should complete the work within the specific period and if any Extension of time is required He/She should apply for permission again and do the work.
6. She/He should submit the summary of the work to the Ethical Committee on Completion of the work.
7. She/He should not claim any funds from the institution while doing the work or on completion.
8. She/He should understand that the members of IEC have the right to monitor the work with prior intimation.

Member Secretary **Chairman**
Ethical Committee

26.2.14
DEAN/Convenor
Govt. Rajaji Hospital,
Madurai- 20.

6/2/14

To
The above Applicant
-thro. Head of the Department concerned

APPENDIX – III

CONTENT VALIDITY CERTIFICATES

CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- Brief fatigue inventory

SECTION C- State anxiety inventory

Prepared for data collection by Mrs.v.subashini II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled **"A study to assess the effectiveness of back massage on chemotherapy related fatigue and anxiety among patients receiving chemotherapy in medical oncology ward at government rajaji hospital madurai-20"** has been validated by me.

SIGNATURE OF THE EXPERT

NAME: J. JEBASINGH MD, DM

DESIGNATION: ASST PROFESSOR

ADDRESS: MEDICAL ONCOLOGY
MADURAI MEDICAL COLLEGE

DATE: 25/7/19

Dr. J. JEBASINGH M.D. D.M
ASST. PROFESSOR
MEDICAL ONCOLOGY

CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- Brief fatigue inventory

SECTION C- State anxiety inventory

Prepared for data collection by Mrs.v.subashini II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled **"A study to assess the effectiveness of back massage on chemotherapy related fatigue and anxiety among patients receiving chemotherapy in medical oncology ward at government rajaji hospital madurai-20"** has been validated by me.

SIGNATURE OF THE EXPERT

NAME: S.SARA.

DESIGNATION: Reader in Nursing

ADDRESS: Rani Meyyammai C.O.N. Annamalai University.

DATE:

CONTENT VALIDITY CERTIFICATE

This is to certify that the tool developed by **Mrs.V.SUBASHINI**, II year M. Sc (N) student of College of Nursing, Madurai Medical College, Madurai. (Affiliated to Dr. M.G.R Medical University, Chennai) is validated by the undersigned, can proceed with this tool and conduct the main study for dissertation entitled, **"A study to assess the effectiveness of back massage on chemotherapy related fatigue and anxiety among patients receiving chemotherapy in medical oncology ward at government rajaji hospital madurai-20"** has been validated by me.

SIGNATURE:

PLACE: Perambalur

DATE: 07/05/14

NAME:

DESIGNATION: Associate professor.

ADDRESS:

Head of the Department
Medical Surgical Nursing
Dhanalakshmi Srinivasan College of Nursing
Perambalur - 621 212.

CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- Brief fatigue inventory

SECTION C- State anxiety inventory

Prepared for data collection by Mrs.V.Subashini II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled **"A study to assess the effectiveness of back massage on fatigue and anxiety among patients receiving chemotherapy in medical oncology ward at government rajaji hospital madurai-20"** has been validated by me.

SIGNATURE OF THE EXPERT

NAME: G. Jaya Thanga Selvi

DESIGNATION: Prof cum HOD - Med-Surg

DATE: 25/7/014.

CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- Brief fatigue inventory

SECTION C- State anxiety inventory

Prepared for data collection by Mrs.V.Subashini II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled **"A study to assess the effectiveness of back massage on fatigue and anxiety among patients receiving chemotherapy in medical oncology ward at government rajaji hospital madurai-20"** has been validated by me.

L. Anand

SIGNATURE OF THE EXPERT

APPENDIX – IV

INFORMED CONSENT FORM

ஒப்புதல் அறிக்கை

பெயர்: **நாள்:**

எனக்கு இந்த செவிலிய ஆய்வினைப் பற்றிய முழு விவரம் விளக்கமாக எடுத்துரைக்கப்பட்டது. இந்த ஆய்வில் பங்கு கொள்வதில் உள்ள நன்மைகள் மற்றும் தீமைகள் பற்றி முழுமையாக புரிந்து கொண்டேன். இந்த ஆய்வில் தானாக முன்வந்து பங்கு பெறுகிறேன். மேலும் எனக்கு இந்த ஆய்வீலிருந்து எந்த சமயத்திலும் விலகிக் கொள்ள முழு அனுமதி வழங்கப்பட்டுள்ளது. என்னுடைய பெயர் மற்றும் அடையாளங்கள் ரகசியமாக வைத்துக் கொள்ளப்படும் என்றும் எனக்கு உறுதியளிக்கப்பட்டுள்ளது.

கையொப்பம்

APPENDIX – V

RESEARCH TOOL

A SEMI STRUCTURED INTERVIEW SCHEDULE

Part - I

Sample number [ ]

DEMOGRAPHIC DATA

1. Age

a) 20-30 years [ ]

b) 31-40 years [ ]

c) 41- 50 years [ ]

d) 51 - 60 years [ ]

2. Sex

a) Male [ ]

b) Female [ ]

3. Religion

a) Hindu [ ]

b) Christian [ ]

c) Muslim [ ]

d) Others [ ]

4. Educational status

a) no formal education [ ]

b) primary [ ]

c) high school [ ]

d) graduate [ ]

5. Occupation

   a) Agriculture [ ]

   b) Self employment [ ]

   c) Unemployed [ ]

   d) Govt employee [ ]

6. Family monthly income

   a) 3000-4000 [ ]

   b) 4000-5000 [ ]

   c) 5000 -6000 [ ]

   d) Above 6000 [ ]

7. Marital status

   a) Married [ ]

   b) Un married [ ]

   c) Divorced [ ]

   d) Separated [ ]

8. Residence

   a) Rural [ ]

   b) Urban [ ]

   c) Semi urban [ ]

9. Activity

   a) Sedentary [ ]

   b) Moderate [ ]

   c) Heavy [ ]

10. Social support

a) Parents [ ]

b) husband\spouse [ ]

c) children [ ]

d) friends\relatives [ ]

CLINICAL VARIABLES

Sample number [ ]

1. Site/organ-part involved
   a) cancer breast [ ]
   b) cancer lung [ ]
   c) cancer stomach/colon/oesophagus [ ]
   d) cancer cervix [ ]
   e) others [ ]
2. duration of illness
   a) 0-1 year [ ]
   b) 1-3 year [ ]
   c) 3-5 year [ ]
   d) Above 5year [ ]
3. Opinion about cancer
   a) Curable [ ]
   b) Somewhat curable [ ]
   c) Not curable [ ]
   d) I don't know [ ]
4. Number of chemotherapy cycles
   a) 2^{nd} cycle [ ]
   b) 3^{rd} cycle [ ]
   c) 4^{th} cycle [ ]
   d) More than 4 cycles. [ ]

Part - II

Sample No: **BRIEF FATIGUE INVENTORY**

Throughout our lives, most of us have times when we feel very tired or fatigued.

Have you felt unusually tired or fatigued in the last week? YES ☐ NO ☐

1. Please rate your fatigue (weariness, tiredness) by circling the one number that best describes your fatigue right **NOW.**

   0 1 2 3 4 5 6 7 8 9 10

   No Fatigue **As bad as you can imagine**

2. Please rate your fatigue (weariness, tiredness) by circling the one number that best describes your **USUAL** level of fatigue during past 24 hours.

   0 1 2 3 4 5 6 7 8 9 10

   No Fatigue **As bad as you can imagine**

3. Please rate your fatigue (weariness, tiredness) by circling the one number that best describes your **WORST** level of fatigue during past 24 hours.

   0 1 2 3 4 5 6 7 8 9 10

   No Fatigue **As bad as you can imagine**

4. Circle the one number that describes how, during the past 24 hours, fatigue has interfered with your:

   A. General activity

   0 1 2 3 4 5 6 7 8 9 10

   Does not interfere **Completely Interferes**

   B. Mood

   0 1 2 3 4 5 6 7 8 9 10

   Does not interfere **Completely Interferes**

C. Walking ability

0 1 2 3 4 5 6 7 8 9 10

Does not interfere **Completely Interferes**

D. Normal work (includes both work outside the home and daily chores)

0 1 2 3 4 5 6 7 8 9 10

Does not interfere **Completely Interferes**

E. Relations with other people

0 1 2 3 4 5 6 7 8 9 10

Does not interfere **Completely Interferes**

F. Enjoyment of life

0 1 2 3 4 5 6 7 8 9 10

Does not interfere **Completely Interferes**

Part – III

Sample No: **SPIELBERGER STATE ANXIETY INVENTORY**

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel *right* now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

S.NO	STATEMENT	NOT AT ALL	SOME WHAT	MODERATELY SO	VERY MUCH SO
1.	*I feel calm	1	2	3	4
2.	*I feel secure	1	2	3	4
3.	I am tense	1	2	3	4
4.	I feel strained	1	2	3	4
5.	*I feel at ease	1	2	3	4
6.	I feel upset	1	2	3	4
7.	I am presently worrying over possible misfortunes	1	2	3	4
8.	*I feel satisfied	1	2	3	4
9.	I feel frightened	1	2	3	4
10.	*I feel comfortable	1	2	3	4
11.	*I feel self-confident	1	2	3	4
12.	I feel nervous	1	2	3	4
13.	I am jittery	1	2	3	4
14.	I feel indecisive	1	2	3	4
15.	*I am relaxed	1	2	3	4
16.	* I feel content	1	2	3	4
17.	I am worried	1	2	3	4
18.	I feel confused	1	2	3	4
19.	*I feel steady	1	2	3	4
20.	*I feel pleasant.	1	2	3	4

பகுதி - அ

தனிப்பட்ட விபரங்கள்

மாதிரி எண்: ☐

ஆராய்ச்சியாளரால் வடிவமைக்கப்பட்ட நேர்காணல் படிவம்

1. வயது
    - அ. 20 - 30வயது ☐
    - ஆ. 31- 40வயது ☐
    - இ. 41 - 50வயது ☐
    - ஈ. 51 - 60வயது ☐
2. பாலினம்
    - அ. ஆண் ☐
    - ஆ. பெண் ☐
3. மதம்
    - அ. இந்து ☐
    - ஆ. கிறிஸ்தவர் ☐
    - இ. முஸ்லீம் ☐
    - ஈ. பிற மதத்தவர் ☐
4. கல்வித்தகுதி
    - அ. படிப்பறிவில்லாதவர் ☐
    - ஆ. தொடக்க கல்வி ☐
    - இ. மேல்நிலைக்கல்வி ☐
    - ஈ. பட்டப்படிப்பு ☐
5. பணியின் தன்மை
    - அ. விவசாயவேலை ☐
    - ஆ. சுயதொழில் ☐
    - இ. வேலைக்கு செல்லாதவர் ☐
    - ஈ. அரசு பணியாளர் ☐
6. குடும்ப மாத வருமானம்
    - அ. ரூ.3000 - 4000 ☐
    - ஆ. ரூ.4000 - 5000 ☐
    - இ. ரூ.5000 - 6000 ☐
    - ஈ. ரூ.6000க்கும் மேல் ☐

7. திருமண நிலை

அ. திருமணமானவர் ☐

ஆ. திருமணமாகாதவர் ☐

இ. விவாகரத்தானவர் ☐

ஈ. தனியாக வாழ்பவர் ☐

8. வசிப்பிடம்

அ. கிராமம் ☐

ஆ. நகரம் ☐

இ. குக்கிராமம் ☐

9. செயல்பாடு

அ. உடல் உழைப்பு செயல்பாடில்லாத ☐

ஆ. இயல்பான வேலை ☐

இ. கடினமான வேலை ☐

10. சமூக ஆதரவு

அ. பெற்றோர் ☐

ஆ. கணவர் / மனைவி ☐

இ. குழந்தைகள் ☐

ஈ. நண்பர்கள் / உறவினர்கள் ☐

நோயின் தன்மை

1. புற்றுநோயின் தன்மை

    அ. மார்பக புற்றுநோய் ☐

    ஆ. நுரையீரல் புற்றுநோய் ☐

    இ. கருப்பை புற்றுநோய் ☐

    ஈ. இரைப்பை புற்றுநோய் ☐

    உ. மற்றவை ☐

2. புற்றுநோயின் காலநிலை

    அ. 1 வருடத்திற்கு குறைவாக ☐

    ஆ. 1 முதல் 3 வருடம் வரை ☐

    இ. 3 முதல் 5 வருடம் வரை ☐

    ஈ. 5 வருடத்திற்கு மேல் ☐

3. புற்றுநோய் பற்றி உங்கள் கருத்து

    அ. குணபடுத்தக்கூடியது ☐

    ஆ. முற்றிலுமாக குணப்படுத்த முடியாது ☐

    இ. பாதியளவு குணப்படுத்த ☐

    ஈ. குணப்படுத்த முடியாது ☐

    உ. தெரியாது ☐

4. நோய் அறிகுறிகள்

    அ. உடல் வெப்பநிலை ☐

    ஆ. நாடி துடிப்பு ☐

    இ. சுவாச அளவு ☐

    ஈ. ரத்த அழுத்தம் ☐

5. கிமோதெரபி சுழற்சியின் எண்ணிக்கை

    அ. 2 ஆம் சுற்று ☐

    ஆ. 3ஆம் சுற்று ☐

    இ. 4 ஆம் சுற்று ☐

    ஈ. 4 சுற்றுகளுக்கு மேல்

<u>பகுதி -ஆ</u>

மாதிரி எண்: ☐

உடல் சோர்வு தொடர்பான சுருக்கமான வினா நிரல்

நம்முடைய வாழ்வில் நம்மில் பெரும்பாலானோர் சில நேரங்களில் மிகவும் களைப்பு அல்லது சோர்வு அடைவது உண்டு.

கடந்த வாரத்தில், நீங்கள் வழக்கத்திற்கு மாறாகக் களைப்பு அல்லது சோர்வு அடைந்தது உண்டா? ஆம் ☐ இல்லை ☐

1. தயவு செய்து உங்கள் சோர்வின் (அலுப்பு, களைப்பு) அளவினை இப்போதைய நிலையில் சரியாக விளக்கும் எண்ணிற்கு வட்டமிடுக.

0	1	2	3	4	5	6	7	8	9	10
சோர்வு இல்லை										நீங்கள் கற்பனை செய்துபார்க்கும் அளவுக்கு மோசமாக

2. தயவு செய்து கடந்த 24 மணி நேரத்தில், உங்களது வழக்கமான சோர்வின் (அலுப்பு, களைப்பு) அளவினைச் சரியாக விளக்கும் எண்ணிற்கு வட்டமிடுக.

0	1	2	3	4	5	6	7	8	9	10
சோர்வு இல்லை										நீங்கள் கற்பனை செய்துபார்க்கும் அளவுக்கு மோசமாக

3. தயவு செய்து கடந்த 24 மணி நேரத்தில், உங்களது மோசமான சோர்வின் (அலுப்பு, களைப்பு) அளவினைச் சரியாக விளக்கும் எண்ணிற்கு வட்டமிடுக.

0	1	2	3	4	5	6	7	8	9	10
சோர்வு இல்லை										நீங்கள் கற்பனை செய்துபார்க்கும் அளவுக்கு மோசமாக

4. கடந்த 24 மணி நேரத்தில், உங்கள்பால் சோர்வு ஏற்படுத்திய குறுக்கீட்டினை விளக்கும் எண்ணிற்கு வட்டமிடுக.

A. பொது நடவடிக்கை

0	1	2	3	4	5	6	7	8	9	10
தலையிடுவது இல்லை										முழுமையாகத் தலையிடுதல்

B. மனநிலை

0	1	2	3	4	5	6	7	8	9	10
தலையிடுவது இல்லை										முழுமையாகத் தலையிடுதல்

C. நடக்கும் ஆற்றல்

0	1	2	3	4	5	6	7	8	9	10
தலையிடுவது இல்லை										முழுமையாகத் தலையிடுதல்

D. இயல்பான பணிகள் (வீட்டிலும் வெளியிலும் மேற்கொள்ளும் அன்றாடப் பணிகள்)

0	1	2	3	4	5	6	7	8	9	10
தலையிடுவது இல்லை										முழுமையாகத் தலையிடுதல்

E. மற்றவர்களுடனான தொடர்பு

0	1	2	3	4	5	6	7	8	9	10
தலையிடுவது இல்லை										முழுமையாகத் தலையிடுதல்

F. வாழ்வில் மகிழ்ச்சியாக இருக்க

0	1	2	3	4	5	6	7	8	9	10
தலையிடுவது இல்லை										முழுமையாகத் தலையிடுதல்

பகுதி - இ

மாதிரி எண்: ☐

ஸ்பில்பெர்கர்ஷின் மன உணர்வை மதிப்பிடும் பட்டியல்

பின்வரம் கூற்றுகள் உங்கள் மன உணர்வைப் பற்றி கேட்கப்பட்டுள்ளன. இதில் சரி, தவறு என்று பதில் கிடையாது. இவற்றில் சரியானது என்று நீங்கள் உணர்வதை வட்டமிடவும்.

வ.எண்	கூற்றுகள்	இல்லை	ஓரளவு	மிதமான அளவு	அதிக அளவு
21.	*நான் அமைதி நிலையில் இருக்கிறதாக உணர்கிறேன்	1	2	3	4
22.	*நான் பாதுகாப்பாக உள்ளதாக உணர்கிறேன்	1	2	3	4
23.	நான் மன இறுக்கத்துடன் இருக்கிறேன்.	1	2	3	4
24.	நான் மன அழுத்தம் இருப்பதாக உணர்கிறேன்	1	2	3	4
25.	*என் மனம் இலகுவாக இருப்பதாக உணர்கிறேன்	1	2	3	4
26.	நான் பாதிப்படைந்து இருப்பதாக உணர்கிறேன்	1	2	3	4
27.	வரப்போகும் துரதிஷ்டங்களை நினைத்து தற்போது வருத்தப்படுகிறேன்	1	2	3	4
28.	*நான் திருப்தியுடன் இருப்பதாக உணர்கிறேன்.	1	2	3	4
29.	நான் பயப்படுவதாக உணர்கிறேன்.	1	2	3	4
30.	*நான் சௌகரியமாய் இருப்பதாக உணர்கிறேன்	1	2	3	4
31.	*நான் தன்னம்பிக்கையுடன் இருப்பதாக உணர்கிறேன்.	1	2	3	4
32.	எனக்கு நடுக்கம் இருப்பதாக உணர்கிறேன்.	1	2	3	4
33.	நான் திகைக்கிறேன்.	1	2	3	4
34.	நான் முடிவு எடுக்க முடியாதவர் போல் நினைக்கிறேன்.	1	2	3	4
35.	*என் மனம் அமைதியாக இருப்பதாக உணர்கிறேன்.	1	2	3	4
36.	*நான் நம்பிக்கையுடன் இருப்பதாக உணர்கிறேன்.	1	2	3	4
37.	நான் கவலையுடன் இருக்கின்றேன்.	1	2	3	4
38.	நான் மனக்குழப்பத்துடன் இருப்பதாக உணர்கிறேன்.	1	2	3	4
39.	*நான் மன உறுதியுடன் இருக்கின்றேன்.	1	2	3	4
40.	*நான் மகிழ்ச்சியாக இருப்பதாக உணர்கிறேன்.	1	2	3	4

APPENDIX - VI

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation **"A study to assess the effectiveness of back massage on chemotherapy related fatigue and anxiety among patients receiving chemotherapy in medical oncology ward at government rajaji hospital madurai-2o"** done by Mrs.subashini.v, M.Sc., Nursing II year student, College of Nursing, Madurai Medical College, Madurai - 20 has been edited for English language appropriateness.

Name: MRS. POOVIZHI.

Signature 5/1/2015

Designation: B.LIT

Institution: அரசு உயர்நிலைப்பள்ளி
மருதவனம் - 614 710

APPENDIX - VII

CERTIFICATE OF TAMIL EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation **"A study to assess the effectiveness of back massage on chemotherapy related fatigue and anxiety among patients receiving chemotherapy in medical oncology ward at government rajaji hospital madurai-20 "** done by Mrs. Subashini.v, M.Sc., Nursing II year student, College of Nursing, Madurai Medical College, Madurai - 20 has been edited for Tamil language appropriateness.

Name: J. SAMPATH

Signature

Designation: B. LIT

Institution: அரசு உயர்நிலைப்பள்ளி
மருதவனம் - 614 710

APPENDIX - VIII

PROCEDURE

BACK MASSAGE

INTRODUCTION

One of the most primal and spontaneous ways in which humans offer support to another who is ill or suffering has been through touch. Florence Nightingale, founder of the modern nursing profession, recognized this and regarded caring touch as an essential ingredient of good nursing care. Indeed, touch as a simple expression of interpersonal caring – without technique or manipulation of tissue – is now known to evoke powerful salutogenic responses in the body and mind of the recipient.

While various forms of therapeutic manipulation of soft tissue have been practiced across cultures for thousands of years, Swedish (also referred to as ‘‘classical’’) massage is the most common form in the West and is the core of most massage training programs. Swedish massage was developed in the 19th century by Per Henrik Ling and introduced as a health care modality in the United States (US) in the 1850s by George and Charles Taylor, two physicians who had studied in Sweden. Massage is now recognized as an intervention for quality of life in both palliative and end-of-life care. Swedish massage has the most extensive evidence base and is the baseline training in most massage schools. Its most recognizable hallmarks are the familiar long, flowing or gliding strokes of effleurage, and the strokes of petrissage that lift, roll, or knead the tissue. These methods also are relatively easily learned and hence can be taught to family care givers. Other common Swedish techniques include friction, vibration, and tapotement (percussion or tapping).

DEFINITION

Massage therapy (MT) is defined as the intentional and systematic manipulation of the soft tissues of the body to enhance health and healing (Benjamin & Tappan 2004).

BENEFITS OF BACK MASSAGE

1. Back massage helps in stress reduction, increases comfort, and provides increased relaxation.
2. Back massage reduces symptoms of anxiety, pain, fatigue, and nausea reduces muscle tension and improves quality of life.
3. Back massage increases circulation, stimulates venous and lymphatic drainage improving muscle tissue metabolism and elasticity, and promoting relaxation through enhanced parasympathetic and reduced sympathetic nervous system activity
4. Back massage Reduces stress-related physiological responses such as blood pressure, heart rate, epinephrine, and cortisol and is used for effective symptom management in acute and chronic medical and surgical conditions in adults and children.
5. Increase oxygenation of blood and release metabolic waste such as lactic and uric acids from the tissues of the muscles.

BACK MASSAGE PROCEDURE:

Pre procedure care:

- Explain the procedure and get the consent from the subjects.
- Inform the patient that the duration of the procedure is 15 minutes.

- Instruct the patient to clean the posterior aspect of the trunk and dry the area with the clean cloth.
- Provide privacy to the patient and positioned the subject in a prone position.

Procedure

Wash the hands and warm up the fingers by rubbing and pour some amount of liquid paraffin in the hands and apply on the posterior aspect of the trunk and the following massage technique is followed.

Steps of back massage

1. Effleurage

These are the sliding or gliding slow, gentle stroking movement. They are long sweeping strokes that alternate between firm and light pressure and with can be performed using the palm of the hand or the fingertips. The knots and tension in the muscles tend to get broken with this massage technique. They generally move towards the heart and the therapist is in full contact with the client.

2. Petrissage

This is the technique of kneading the muscles of the body to attain deeper massage penetration. The thumbs and the knuckles of the fingers are used to knead the muscles of the body with the pads of the fingers or thumb. Their main purpose is to stimulate deeper circulation and to relax larger and deeper muscles.

3. Tapotement or Rhythmic Tapping

This technique of Swedish massage, as the name suggests consists of rhythmic tapping that uses the fists of the cupped hands. This helps to loosen and relax the muscles being manipulated and also helps to energize them. The sides of the hands are used in this massage technique.

4. Vibration or Shaking

This is the one among Swedish massage techniques that helps to **loosen up the muscles** by using a back and forth action of the fingertips or the heel of the hand over the skin. The muscles of the body are literally shaken up to loosen and relax the muscles. The sides of the hand and any part of the hand such as the tips or heel can be used by the masseuse to shake up the muscles of the person.

The intervention was carried out for 15 minutes for three consecutive days.

After care

- Reposition the patient
- Provide psychological support.

After effects of massage

Therapeutic massages improve local musculoskeletal symptoms and function and can also positively affect mood state and pain threshold. The mechanisms by which massage exerts these multiple therapeutic effects are not yet known. Manipulation of affected muscles and fascia (as in Swedish massage) induces local biochemical changes that modulate local blood flow and oxygenation in muscle. These local effects may influence neural activity at the spinal cord segmental level

and could modulate the activities of sub cortical nuclei that influence mood and pain perception. Local changes may influence neural plasticity at the associated segmental level of the spinal cord and the release of neuropeptides (such as calcitonin gene–related peptide) that increase perfusion.

APPENDIX - IX

PHOTO GRAPHS